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CONTENTS

	PAGES
Diagnosis (*concluded*)	25–28
Complications, and Tuberculosis of Organs Other than Lungs	28–44
Treatment	44–48
General: Sanatorium: Dietetic	44–48
Surgical (Collapse Therapy)	48

Besredka's Reaction in Practical Work.—The results of complement fixation with Besredka antigen on 1167 patients are reported. A total of 330 patients reacted positively. In 143 of them tuberculosis was determined or they were definitely suspected of tuberculosis. In the remaining 187 positive cases there were no indications of clinical tuberculosis. Out of the total of 1167 patients, 291 had clinical tuberculosis or were definitely suspected of tuberculosis; one hundred and forty-eight of these had a negative Besredka reaction. There were 78 active cases of tuberculosis in all of which tubercle bacilli had been demonstrable, but only 48 of them had a positive Besredka reaction. Only 9 of the patients who had a positive Besredka reaction, but not demonstrable tuberculosis, had a positive Wassermann reaction. There was no parallelism between complement fixation, temperature and sedimentation reaction. The author concludes that the Besredka reaction is of definite clinical value.—*Die Verwertbarkeit der Tuberkulosereaktion nach Besredka in der Praxis, A. Grumbach and A. J. Werner, Klin. Wchnschr., May 28, 1929, xii, 1022.—(M. P.)*

Costa Reaction.—The Costa reaction, which originated as a diagnosis for pregnancy, consists in placing 1.5 cc. of 2 per cent novocain solution in a centrifuge tube, to which is added 3 drops of a 5 per cent sodium-citrate solution, and to this mixture is then added 3 drops of blood taken from the finger, and to the separated centrifugate one drop of a concentrated formalin solution. A turbidity occurring within 8 minutes is considered a positive reaction. Of 282 cavity cases of tuberculosis 91.8 per cent gave a positive reaction. The advantage noted for the reaction is the fact that it occurs independent of menstruation.—*Über den Wert der Costa-Reaktion zum Nachweis aktiver Tuberkulose, Margarethe Trojan and F. Pongor, Zeitschr. f. Tuberk., 1928, lii, 209.—(H. J. C.)*

Serum Flocculation Test.—The difference between the new method described by Daranyi and the original method given by him consists in heating the mixtures at 62°–63° instead of at 60°, and in a simplification of the readings which are divided into four classes. Daranyi maintains that his method has both technical and other advantages over those described by other authors. Testing of the serum flocculation (lability) is a constant index of tissue destruction and activity in tuberculosis.—*Die Bestimmung und Bedeutung der Erhöhung der Serum-flockbarkeit (Labilität) bei Tuberkulose, J. von Daranyi, Beitr. z. Klin. d. Tuberk., 1928, lxix, 558.—(H. J. C.)*

Vernes Test in Tuberculosis.—Pierret and Breton, in a previous work, demonstrated the value of this test in the serological study of tuberculosis. From 217

seroflocculation tests and 211 complement-fixation reactions on 172 subjects, of whom 117 had pulmonary tuberculosis, they concluded: (1) the Vernes reaction possesses high diagnostic value in tuberculosis, and (2) it is more sensitive than the complement-fixation reaction. Another impression was formed that in most cases the optical index approached or receded from 30 according to whether the patients were improving or the reverse. Causes of error due to acute infections were pointed out, also the advisability of avoiding taking the blood during the digestive period and of always performing the reaction within twenty-four hours after taking it. The present work consists of a series of Vernes reactions done on 22 patients with pulmonary tuberculosis of some standing and were performed at Grysez's laboratory at the Institut Pasteur at Lille. The concordant work of other authors (Leger, Paillard, and Courmont, Gaté and Schoen) is also cited, most of whom found the reaction generally in agreement with the clinical progress. Case histories are given in detail by Pierret and Breton. In summary, 16 cases showed absolute concordance between the clinical findings and the Vernes curve (72.7 per cent), 4 cases complete concordance (18.2 per cent) and 2 total discordance (9.1 per cent). This seems to indicate a definite prognostic value of the Vernes reaction performed serially in pulmonary tuberculosis. This is particularly well illustrated in patients undergoing pneumothorax treatment. This curve may then be consulted just as the weight or temperature curve. The complement-fixation reaction, on the other hand, showed in 10 out of 21 cases irregular results which seemed to bear less relation to the course of the disease. In 4 it was always negative; hence in two-thirds of the cases it could not be utilized satisfactorily in prognosis. *Conclusions: 1:* The seroflocculation curve of Vernes generally agrees, in pulmonary tuberculosis, with the clinical evolution. *2:* The Vernes resorcin test, practised in series, allows a curve to be plotted which maps the course of the disease. *3:* Its prognostic value is limited to the immediate future. *4:* Seroflocculation surpasses complement fixation in clinical value. In 90 per cent of cases the curve parallels the course of the disease as compared with 33.3 per cent for complement fixation.—*Contribution à l'étude de la réaction de Vernes-résorcine dans les cas de tuberculose pulmonaire régulièrement suivis, R. Pierret and A. Breton, Rev. d. l. Tuberc., October, 1928, ix, 671.*—(*A. P.*)

Vernes Test in Tuberculosis.—The principle of the test consists in the measurement of the degree of the flocculation of blood-serum to which an equal amount of 1.25 per cent resorcin in double distilled water has been added. Vernes found that a figure of 30 or over signified that the serum came from a case of active tuberculosis, while readings between 15 and 30 were in the doubtful area, being the more suspicious the nearer they approach 30. Primary chancre, acute lobar pneumonia and advanced cancer give false positive readings. The blood sera of 92 patients were tested with the Vernes method by the author. Fifty of these had positive sputum, 11 had definite tuberculosis with negative sputum, 17 were suspects, and 14 had no clinical evidence of tuberculosis. In all the groups except the suspects the Vernes results corresponded fairly well with the clinical findings. In the suspect group, however, the test was unsatisfactory. This is the group in which help from the laboratory is most needed, whereas the results were uncertain. It is believed, nevertheless, that the results are encouraging enough to warrant further use.—*Vernes' Photometric Test in the Diagnosis and Prognosis of Tuberculosis, R. Jordan, Brit. J. Tuberc., April, 1929, xxiii, 82.*—(*J. S. W.*)

X-Rays in Pulmonary Tuberculosis.—X-ray examinations are often useful in excluding tuberculosis, as well as for confirming clinical evidence which is not quite strong enough to be conclusive. It is essential in cases of initial haemoptysis, after an idiopathic pleural effusion or spontaneous pneumothorax, in cases of probable laryngeal tuberculosis, and in some cases of nonpulmonary tuberculosis. It is essential before artificial pneumothorax treatment is commenced, and at intervals during the treatment. It is often helpful on other occasions, especially as indicating a good prognosis in a case with slight symptoms and signs combined with a well-developed mottling. It is liable to be misleading when it shows a generalized mottling, or indefinite when it shows a homogeneous opacity, which may be due either to fluid or to consolidation. Every clinician should study the X-ray films of his patients, because it is only by experience that the significance of X-ray findings can be discovered and their help used to the best advantage.—*The Correlation of X-ray Findings in Pulmonary Tuberculosis with the Symptoms and Physical Signs, G. T. Herbert, Tubercle, November, 1929, xi, 55.*—(*W. I. W.*)

X-Ray "Quality" Diagnosis of Pulmonary Tuberculosis.—The authors consider the "quality" diagnosis in pulmonary tuberculosis very important and indis-

pensable. They point out, after careful studies, that the certitude of the diagnosis is dependent upon the quality of the roentgen pictures and the technique of plate reading. Their findings are carefully appraised on the basis of physical studies as well.—*Unter welchen Voraussetzungen ist die röntgenologische Qualitätsdiagnose der Lungentuberkulose praktisch möglich? F. M. Groedel and R. Wachter, Beitr. z. Klin. d. Tuberk., 1928, lxix, 192.*—(*H. J. C.*)

Fluid Level in Bronchopulmonary Disease.—The preceding work of Mamie and Amard, Barjon, Mantoux and Maingot, Ameuille and Levesque, Sergent and Bordet, Giraud, and Jacob, is referred to. The roentgenographs of Chabaud and Thérasse also show the phenomenon. The roentgenographic determination of a fluid level, observed under certain definite conditions, when added to an annular or lacunar shadow, definitely indicates pulmonary excavation or destruction. *1:* In the course of pulmonary tuberculosis this sign is more frequent than heretofore mentioned. In a group of 143 sanatorium cases chosen at random there were 43 characteristic cases. It may be missed on ordinary fluoroscopic examination unless the rays are centred directly on the horizontal level of the shadow. An important point in the demonstration of any suspected cavity image is to centre on its lower pole. On inclination, the level may change quite slowly because of adhesion of the pus to the walls. *2:* Such images are not by any means pathognomonic of tuberculosis. They may be seen in gangrene, abscess, and occasionally bronchiectasis. In the latter case Davrinche has demonstrated their nature by lipiodol injection. The sign described merely suggests an excavation somewhere in the bronchopulmonary system. In tuberculous subjects showing such images the sputum is invariably positive. Also, as such images appear or reappear or disappear, it becomes positive or negative. Of 32 cases carefully observed among the 43, the following observations were noted: *1:* Eighteen were constantly bacillary and the cavity image persisted. *2:* Two cases later failed to show the characteristic "ring" or "lacuna" and were intermittently bacillary. *3:* Nine cases, treated effectively by pneumothorax, underwent reduction of the shadow and ceased to expectorate bacilli. *4:* Three cases showed spontaneous pulmonary retraction with disappearance of sputum and of the roentgenographic cavity image. These findings support the opinion of Thérasse who says he has never seen a true pulmonary cavity without bacillary sputum and, *vice versa*, that constant emission of bacillary products constitutes the signature of a true tuberculous cavity. *Discussion:* The term *déchet pulmonaire*, or, more exactly, alteration or destruction of organized tissue in the parenchyma, means suppuration, permanent or intermittent, and goes with the idea of progressive evolution. As long as such a condition persists, there is danger, and caution should be observed. The behavior of these shadows, after a lapse of months or years, is of primary prognostic value. Six excellent roentgenographs illustrate the paper.—*Remarques à propos du "Niveau liquide de déchet," signe radiologique absolu d'excavation ou de cavité pathologique au cours des affections broncho-pulmonaires, U. Guinard, Section d'études scientifiques de l'Oeuvre de la Tuberculose, May 12, 1928, reported in Rev. d. l. Tuberc., August, 1928, ix, 584.*—(*A. P.*)

Technique of Bronchography.—It is unsatisfactory to use bronchographic methods unless in association with the bronchoscope so that one can really see what he is doing. The use of a rubber catheter armed with a metal, olive-like knob gives very satisfactory results. The instrument is placed down the trachea after complete (local) anaesthetization of trachea, bifurcation and bronchi and the patient then examined under the fluoroscope to ascertain if the position is perfect. Lipiodol is then put in. The method is particularly helpful in the diagnosis of bronchiectasis. It is known that extensive bronchiectasis may escape our attention in ordinary X-ray plates, when bronchography shows the condition beautifully. It is indispensable if there is a question of operation. It may be done away with, however, in gangrene, pulmonary abscess, etc., for these are detectable by ordinary means. Filling of tuberculous cavities is of no advantage, and, in active tuberculosis, the technique is contraindicated because it may lead to spread of the disease. Stenosis of the bronchus (carcinoma, pressure from lymph nodes, etc.) is usually well shown by the method as is also pulmonary fistular opening. Although iodine produces no irritation, bronchographic procedures are contraindicated just after pneumonia and in cases of idiosyncrasy to iodine. The iodine in the latter instance is absorbed, not from the lung but from the stomach and intestine from iodine swallowed during the operation. Bromine oil may be substituted in iodism. The only real danger in the use of bronchography is that from cocaine poisoning, and this can be controlled by proper anaesthetization.—*Zur Technik der Bronchographie, A. Lorey, Deutsche med. Wchnschr., March 29, 1929, lv, 526.*—(*H. S. W.*)

Roentgenology of Bones.—Tuberculosis of the spine must be considered in the differentiation of osteoclastic metastasis. In tuberculosis, the intervertebral disk is practically always involved; it is never involved in osteoclastic metastasis. The contour of the body is remarkably retained in metastasis; it is practically always destroyed or altered in tuberculosis. The spine may be extensively involved by metastatic carcinoma of the osteoclastic type with little, if any, roentgenological evidence discernible. In syringomyelia, osteomalacia and rare cases of metabolic disorder of an unexplained type, one sees marked demineralization of the bone and narrowing of the anterior border of the vertebral body, and the decreased density of the bone may suggest osteoclastic metastasis. Osteochondritis in the spine may show fragmentation and almost complete destruction of the body of the vertebra with no alteration of the disk, that might be interpreted as sarcoma in young patients.—*Roentgenographic Characteristics of Lesions of Bone, C. G. Sutherland, J. Am. M. Ass., December 28, 1929, xciii, 2024.*—(*G. L. L.*)

X-Ray Image of Aspiration Pneumonia.—Haemorrhage into the bronchi does not produce a typical X-ray picture, but resembles a bronchopneumonia, occurring mostly in the lower lobe and also in the right middle lobe. Serial examinations are suitable in following the course of such aspiration pneumonias which result either in healing or a transition into tuberculosis. The roentgenograph has the advantage of making an earlier diagnosis than can be made by ordinary clinical methods.—*Blutaspirationspneumonie im Röntgenbild, F. Jagoda, Beitr. z. Klin. d. Tuberk., 1928, lxix, 724.*—(*H. J. C.*)

Artificial Pneumothorax in Diagnosis of Cavity.—The author believes that, especially in cases in which clinical symptoms of cavity are masked by compensatory emphysema, diagnostic pneumothorax can be of definite value and demonstrates his idea on 3 cases with roentgenographs.—*Über Verfeinerung der Kaverndiagnose mit Hilfe des diagnostischen Pneumothorax, Trenti, Beitr. z. Klin. d. Tuberk., 1928, lxx, 420.*—(*H. J. C.*)

Artificial Pneumothorax in Differential Diagnosis of Pulmonary Tumor and Tuberculosis.—The author reports a case in which the ordinary roentgen examination did not permit a differential diagnosis between lung tumor and tuberculosis, but which was possible after the institution of an artificial pneumothorax and the introduction of 600 cc. of air.—*Ein Beitrag zur Differentialdiagnose Lungentumor-Tuberkulose, E. Schwalm, Beitr. z. Klin. d. Tuberk., 1928, lxviii, 667.*—(*H. J. C.*)

Perspiration Test for Tuberculosis.—The author used the perspiration of tuberculous individuals for the elicitation of specific reactions analogous to the Wildbolz urine test. The perspiration was obtained by means of a hypodermic syringe directly from the axilla or from the brow of the patient, and after permitting the solid epidermal material to settle out the solution was injected intracutaneously into the upper arm in 0.2-cc. amounts. The experiments were tried on auto- and heterodonors. Of 171 tests 81.3 per cent proved theoretically correct. There occurred, like with the tuberculin skin test, a local reaction at the site of injection, while general and focal reactions were absent. Positive reactions, as a rule, indicated an active tuberculosis of the donor while negative tests indicated the reverse. The diagnosis of an active tuberculosis in the perspiration donor is possible in the majority of moderately severe and severe tuberculous cases and when the perspiration recipient is tuberculin hypersensitive. The early diagnosis of active tuberculosis was not possible by means of the intracutaneous injection of perspiration.—*Intracutane Schweissinjektionen und Tuberkulose, E. Dorn, Zeitschr. f. Tuberk., 1928, li, 134.*—(*H. J. C.*)

Important Complications of Pulmonary Tuberculosis.—Statistics of ten or fifteen years ago, which attributed 90 to 95 per cent of haemoptyses to pulmonary tuberculosis may need revision in the light of further knowledge, but an estimate of 80 per cent does not seem excessive. Evidence is also constantly accumulating that a large majority of persons developing pleurisy with effusion do so secondarily to a primary pulmonary focus. The mathematical chances of tuberculosis being present are overwhelming in the case of one who has haemoptysis, pleurisy, fistula-in-ano, or transient attacks of slight hoarseness, even in the face of previous good health. *Haemoptysis:* The amount of bleeding has little bearing on the size of the lesion. The larger and graver haemorrhages originate generally from aneurysmal vessels within cavities. Few haemorrhages are fatal *per se.* Of 4,000 such at Norwich, Connecticut, State Sanatorium over sixteen years, only 10 were immediately fatal (0.25 per cent). A number of deaths, however, ensued from post-haemorrhagic pneumonia or acute tuberculous extension. The treatment, in general,

demands rest in a recumbent position. The patient's nervous condition frequently necessitates morphine in small to moderate dosage, to induce quiet and relaxation. An ice-bag to the chest exerts a good psychological effect. If the bowels do not move naturally, small doses of a saturated solution of magnesium sulphate, as used by Flick, or enemata, are recommended. Artificial pneumothorax in some cases exerts remarkable effects and should always be tried in persistent bleeders if the disease is fairly unilateral. Only cursory chest examinations should be made. *Pleurisy:* It is repeated that this is a secondary manifestation of a concealed parenchymal focus in the majority of cases. Too often is this fact minimized or overlooked. Lord states that tubercle bacilli are demonstrable in 25 to 85 per cent of effusions. Cultures may reveal them when absent on direct smear. The Phipps Institute records show that of 5,855 diagnosed tuberculosis cases 23.8 per cent gave a history of previous pleurisy. Localized patches of fibrinous pleurisy are more commonly observed in pulmonary tuberculosis than large effusions. When fluid develops, with the opposite lung in good condition, gas replacement is advised. For pain, hot applications or strapping with moleskin plaster of six- or eight-inch width are advised, and sometimes codeine or morphine must be given. *Pneumothorax:* Although this may exist in as high as 10 per cent of cases coming to necropsy, clinically its incidence is less than 2 per cent. The two cardinal symptoms are pain in the side, sharp and stabbing, and increasing dyspnoea or air hunger. Shock symptoms are likely to supervene. On examination hyperresonance appears early, with displacement of cardiac dulness. The breath-sounds may be suppressed or metallic, and metallic tinkle and succussion splash are common. The coin test is pathognomonic. This is a grave complication and if pleural infection ensues usually leads rapidly to death. A sterile exudate may act beneficially to seal the perforation. In valvular cases deflation must be resorted to.—*Complications of Tuberculosis—Haemoptysis, Pleurisy and Spontaneous Pneumothorax, H. B. Campbell, Section of Tuberculosis, Massachusetts Med. Soc., June 10, 1929, reported in New England J. M., August 29, 1929, cci, 395.*—(*A. P.*)

Comparison of Tuberculous with Other Infections.—The author opposes the general view of the importance of the rôle of allergy in the course of human tuberculosis. Tertiary tuberculosis is viewed as a changed condition in the whole organism of the adult as compared to the earlier periods of life. The variations in general condition are considered as variations of the "intoxication circumstance." The disease condition during generalization is viewed as parallel to the same opportunity in other infectious conditions. Allergy does not explain the predilection of certain organs for metastases. The anthracotic, fibrotic lymphatic system of the adult, as compared to that of the child, is drawn upon in explanation of some of the variations. A parallelism is seen between the vascularization and that occurring in other septic conditions.—*Die tuberkulöse Infektion des Menschen im Vergleich zu den übrigen bakteriellen Infektionen des Menschen, LeBlanc, Beitr. z. Klin. d. Tuberk., 1928, lxx, 357.*—(*H. J. C.*)

X-Ray Treatment of Tuberculous Iridocyclitis.—The picture of tuberculous iridocyclitis is reviewed by the author. The tuberculous nature of the eye condition was considered settled in the absence of other infectious diseases in the body, and in the presence of other foci either in the lungs or elsewhere of tuberculous nature or a focal reaction in the eye following subcutaneous tuberculin injections. Inunction cures are without results. Tuberculin treatment results favorably in only a small percentage of cases. Light treatment is without avail. During the past 7 years 170 cases were treated with the roentgen-ray locally, using 20 per cent of an erythema dose and giving three treatments during the year. A greater dosage resulted harmfully with glaucoma and cataracts. After treatment there frequently occurred a reaction in that the eye became red, light-sensitive and painful, but this disappeared in two to three days with the use of atropin and warm packs. Late reactions occurring after 4 weeks were also observed. A number of the cases were very favorably influenced, especially the cases of pure nodular iritis. Younger individuals reacted more favorably than those over 40 years. Cyclitis is not so favorably influenced, and in choroiditis the results have not been established. Good results were obtained in scleritis and in sclerokeratitis. Caution is urged in periphlebitis retinae.—*Über Behandlung der tuberkulösen Iridocyclitis mit Röntgenstrahlen, W. Stock, Zeitschr. f. Tuberk., 1928, li, 122.*—(*H. J. C.*)

Soft Palate in Pulmonary Tuberculosis.—Changes are seen in the soft palate in pulmonary tuberculosis, it being pale, definitely poor in fat and generally soft in structure. The paleness is not an index of a general anaemia but of an anaemia that predominates in certain regions of the gastrointestinal tract. The sparsity in fat is seen

also in Recklinghausen's disease, lymphogranulomatosis, and in some types of infantilism. These symptoms are found in chronic fibrous and also in fibrocavernous processes. When, however, cavernous liquefaction predominates or there is a miliary dissemination there may be an increase in fat. It was also noted that when there was an increased amount of fat in the intestine there was a diminished sensitiveness to tuberculin. Among those poor in fat and showing fat-poor soft palates there occurred cardiac palpitation, night-sweats and increased tuberculin sensitiveness.—*Der weiche Gaumen bei der Lungentuberkulose und seine Bedeutung für die Frage der Tuberkulinbehandlung, P. Neuda, Beitr. z. Klin. d. Tuberk., 1928, lxix, 433.*—(*H. J. C.*)

Tuberculosis of Thyroid.—The most common form of tuberculosis of the thyroid is the miliary type, the tubercles being usually found in the stroma between or within the follicles. This type of involvement is not surgical, and it is not possible to diagnose it from clinical observations. Caseous tuberculosis of the gland, while rare, is more common than the sclerosing type, beginning as a conglomeration of tubercles and finally caseating, the progress of the disease depending largely on the vascularity of the thyroid. Not infrequently a cold abscess develops, and fixation of the thyroid in some cases. The cervical lymphatics are often involved. It is a surgical condition, and may give rise to symptoms leading to a correct diagnosis. In the sclerosing type the thyroid is converted in part or in whole into fibrous tissue. Tubercle bacilli have not been demonstrated in the gland tissue in this type of lesion. Although the usual opinion is that a typical tuberculous histology is lacking, the authors have found tubercles in all cases, but no caseation or calcification. The most noticeable observation is that there is an unusually large number of giant cells in relatively small tubercles, with a limited round-cell response. In some places the fibrous tissue (the predominant cell being chiefly of the fibroblastic variety) takes on neoplastic characteristics. The gland in gross appearance may simulate malignant tumor, being hard, elastic, and usually fixed to the surrounding tissues. The fibrosis may involve only one lobe. If extensive, the entire thyroid may be blotted out. If cheloid properties predominate, the gland may show great enlargement. Three cases of the sclerosing type are reported in women of an average age of 41 years. All had soreness and tenderness of a few months' duration in the region of the thyroid, slightly elevated temperatures and accelerated pulse-rates. Two had lost an average of 20 pounds' weight. All were nervous, and two had increased basal metabolic rates. No positive signs of tuberculosis were found elsewhere in any, but one had a cervical abscess scar and a chronic anal fistula. The operative wounds healed in two to four weeks, and the symptoms were largely relieved. The disease is a destructive one and, if of long standing, may result in myxoedema. In the early stages some hyperthyroidism is likely to be present. The diseased tissue should be removed as completely as possible and the prognosis for local cure is excellent.—*Tuberculosis of the Thyroid Gland: Report of Cases, S. W. Budd and C. Williams, J. Am. M. Ass., May 25, 1929, xcii, 1741.*—(*G. L. L.*)

Benzyl Cinnamic Ester in Tuberculous Laryngitis.—Seven cases of stationary or progressive tuberculous laryngitis were treated by Jacobson's solution of "benzyl cinnamic ester," injected intramuscularly in doses of 0.25 cc. daily for twelve days, followed by a rest of fifteen days. After three series had been given, a rest of one month was allowed before resuming treatment. *Conclusions:* Improvement of the laryngeal condition, in varying degree, was observed in all cases. In one it was slight and in another it was not maintained. The functional results corresponded, but the most striking feature was the disappearance of pain and dysphagia during the treatment. Remembering the severity of the cases and their previous failure to improve, the results suggest that such benefits as were obtained were the result of treatment. All cases remained with positive sputum at the end of the treatment. Improvement in the patient's general condition was noteworthy in the first four cases. The details of the roentgenographic changes in the lungs are not discussed, but in the majority increased hardening of the shadows was noticed and in two cases there was some increase in translucency of the lungs.—*Treatment of Tuberculosis by "Benzyl Cinnamic Ester:" Its Use in Laryngeal Tuberculosis, H. Gainsborough and P. J. Jory, Lancet, June 1, 1929, ccxvi, 1142.*—(*B. T. McM.*)

Laryngeal Tuberculosis.—This is a frequent complication of pulmonary tuberculosis and its presence materially darkens the prognosis of that disease, to which it is practically always secondary, only five or six authentic primary cases with necropsy findings being on record. Its incidence in pulmonary tuberculosis is from 3 to 33 per cent, being 15.5 per cent at Maryland State Tuberculosis Hospital. It is slightly more common in men than women, and rare

in childhood, especially under ten years of age. The surface-implantation theory is most generally entertained, especially since most of the lesions occur in the posterior part of the larynx where sputum is most apt to collect and since Frankel has shown that bacilli may penetrate healthy epithelium leaving the surface intact. The loose, papillated character of the mucosa posteriorly may also favor lodgment. *Symptoms:* These are not always proportionate to the extent of the lesion, and Thomson found about 12 per cent of 477 cases to have no throat symptoms. Voice changes usually appear earliest, such as low pitch, ease of tire, hollowness of timbre. Paraesthesias and general throat discomfort are common, together with frequent attempts to clear by coughing. Pain and tenderness are unusual unless there is perichondritis. Dysphagia occurs in one-third of fatal cases (Mackenzie). *Prognosis:* The prognosis in multiple lesions is unfavorable, in single ones favorable. The mortality from pulmonary tuberculosis, however, is doubled in the presence of this complication (Thomson). *Treatment:* Vocal rest is essential and forced whisper is often worse than speaking in a low voice. It is better for the patient to be instructed to write. Ulcerations are best treated with the galvanic cautery, the beneficial effect of which is due to hypervascularization rather than destruction. Mild cases require two to three applications at monthly intervals, more severe ones ten to twelve. Approximately two-thirds of treated cases are benefited (Thomson). The Finsen Institute of Copenhagen reports 50 per cent cures with heliotherapy (general) and reflected sunlight intralaryngeally has been used (Verba solar laryngoscope). Alkaline sprays are useful for cleansing and demulcent effects. In some cases pain can be relieved by alcoholic injections of the superior laryngeal nerve. The relief lasts two days to several weeks. Resection of this nerve under local anaesthesia might be considered.—*Laryngeal Tuberculosis, C. B. Ernlund, Section of Tuberculosis, Massachusetts Medical Society, reported in New England J. M., August 29, 1929, cci, 408.*—(*A. P.*)

Tuberculosis of Larynx.—Out of 477 patients with tuberculous laryngitis, in 119 the laryngeal lesions were cured by sanatorium treatment, combined with silence, and treatment by galvanocautery.—*Tuberculosis of the Larynx, St. C. Thompson, Brit. M. J., October 26, 1929, no. 3590, 751.*—(*W. I. W.*)

Tuberculosis of Larynx.—From 8 to 25 per cent of proved cases of phthisis exhibit laryngeal symptoms, due to tuberculous involvement. The chief symptoms are pain and cough. Absolute vocal rest is indicated in all of these patients, and galvanocautery may be found useful.—*Tuberculosis of the Larynx, W. G. Howarth, Brit. M. J., October 21, 1929, no. 3590, 749.*—(*W. I. W.*)

Tumor of Breast with Tuberculous Axillary Adenitis.—A case is cited of an intracanalicular fibroadenoma of the breast in a woman of 28 in whom enlarged axillary lymph nodes, which later turned out to be tuberculous, led to the diagnosis of carcinoma of the breast with metastasis. The breast and the axillary nodes were removed. Thorough examination of the breast failed to disclose any evidence of tuberculosis. The woman had pulmonary tuberculosis.—*A Case of Intracanalicular Fibroadenoma of the Breas' with Associated Tuberculous Lymphadenitis Mistaken for Carcinoma, N. Treves, Am. J. Surg., June, 1929, n.s. vi, 781.*—(*H. S. W.*)

Acute Respiratory Infections and Pulmonary Tuberculosis.—About one-half the patients with pulmonary tuberculosis give a history of preceding acute upper respiratory infection, followed shortly by cough and expectoration and later by constitutional symptoms, such as afternoon fever, night-sweats and loss of weight. There is some analogy in this to lobar pneumonia, 25 to 50 per cent of cases of which are preceded by an upper-respiratory infection. However, the point of view that upper-respiratory infections excite pulmonary tuberculous lesions and predispose to lobar pneumonia may be fallacious in that the former infections are very prevalent anyway and may bear only a chance relation to phthisis and pneumonia. Acute respiratory infections accompanying measles, whooping cough, diphtheria and at times scarlet fever are also thought to excite tuberculous activity but the only suggestion of proof lies in the behavior of the tuberculin skin test, especially during measles, indicating temporary anergy. Regarding influenza, mortality statistics afford some information bearing on a relation. During the year preceding September 30, 1889, in the garrison in Munich, 67 men were discharged from service on account of phthisis, and in the succeeding six months 132 or nearly twice as many. In all these tubercle bacilli were found in the sputum. In Paris, from December 22, 1888 to January 4, 1889, 349 persons are recorded as having died from phthisis, and in the same two weeks a year later, 886. These figures certainly suggest that influenza may excite or make worse a

slumbering or existing tuberculosis. In the United States and England and Wales the declining mortality from pulmonary tuberculosis was temporarily interrupted by an increase between 1915 and 1918. The State of Massachusetts shows a gradual rise from 1915 to a peak in 1918, when influenza was prevalent. Less marked increases occurred in 1890 and 1892. While influenza-pneumonia superimposed on phthisis may have been a source of error in some returns in 1918, yet on the whole the unfavorable effect of influenza on pulmonary tuberculosis can hardly be doubted. The effect of pneumonia on a tuberculous patient is more difficult to evaluate because a differential diagnosis between a tuberculous and nontuberculous pneumonia in a patient with phthisis is so difficult. The presumption in unfavorable cases favors a tuberculous origin from the beginning, and conversely, yet such is not necessarily true. It is concluded that influenza appears to be an unfavorable complication of tuberculosis, that the effects of pneumonia are doubtful and that it is difficult to obtain evidence regarding other respiratory infections.—*The Effect of Bronchitis, Influenza and Pneumonia on Pulmonary Tuberculosis, F. T. Lord, Section of Tuberculosis, Massachusetts Medical Soc., June 10, 1929, reported in New England J. M., August 29, 1929, cci, 410.*—(*A. P.*)

Pleural Effusions.—For this study 28 cases of tuberculous pleuritis were repeatedly examined, withdrawing fluid 118 times. Frequently, exudate and blood-serum were examined simultaneously. In the exudates the highest percentage of protein was 6.31, and the lowest 3.65, with an average of 4.85 to 4.98. The highest colloid-osmotic pressure was 257 mm. of water with 5.7 per cent of protein; the lowest was 155 mm. with 3.24 per cent of protein. The colloid-osmotic pressure per one per cent of protein was between 40 and 50 with only three exceptions. The protein content of the exudate is 2.45 to 3.47 per cent lower than in the blood plasma; this difference usually increases as the exudate is resorbed. The resorptive processes are governed by the following factors: the hydrostatic pressure of the capillaries, the hydrostatic pressure in the pleural space and the colloid-osmotic pressure of exudate and blood plasma. The data collected in this study make it probable that the tuberculous process of the pleura damages the capillaries in such a way that they become dilated and permeable to the plasma proteins. Therefore the fluid of the tuberculous pleuritis always contains considerably more protein than that of hydrothorax; the latter shows higher protein concentrations only after concentration, due to water resorption, has occurred. As long as equilibrium exists between the colloid-osmotic and hydrostatic pressures, resorption is only possible by proteolysis of the protein in the exudate; this process liberates water which may be resorbed.—*Pathogenese und Resorption von Trans- und Exsudaten in der Pleura, P. Iversen and E. H. Johansen, Klin. Wchnschr., July 9, 1929, xii, 1311.*—(*M. P.*)

Pleuritic Effusions.—Serofibrinous effusions may be caused by tuberculosis, rheumatic fever, influenza and neoplastic disease. The majority are of tuberculous origin. These effusions should be tapped only when they become so large as to cause respiratory or cardiac distress. Purulent effusions should be aspirated during the acute stage. After the acute stage, incision with or without rib resection and drainage may be carried out.—*The Treatment of Pleuritic Effusions, T. Horder, Brit. M. J., October 5, 1929, no. 3587, 605.*—(*W. I. W.*)

Hilum Tuberculosis.—Hilum tuberculosis can be demonstrated clinically in a relatively large percentage of children. In spite of much clinical evidence suggesting pulmonary tuberculosis in children, actual invasion of the lung parenchyma is relatively rare. The natural tendency in all such cases is toward cure, although in many, physical signs will remain which—in adult life—will be regarded as evidence of old healed lesions. Rupture of adherent caseous glands into a bronchial tube is a not uncommon cause of pulmonary tuberculosis.—*Hilum Tuberculosis as an Important Causative Factor in Pulmonary Tuberculosis in Adults, D. J. G. Johnson, Brit. M. J., August 24, 1929, no. 3581, 335.*—(*W. I. W.*)

Pleural Effusions.—A study of 115 cases revealed the extreme difficulty in determining diagnostically between hydrothorax, tumor effusions and inflammatory exudates, as well as in a differentiation of the inflammatory exudates among each other, especially those of tuberculous origin as distinguished from the nontuberculous. A haemorrhagic character occurs in tuberculosis, frequently in tumors in elderly individuals and in exudates of other types. A lymphocytosis as a rule indicates tuberculosis and a predominance of endothelium speaks for a purely mechanical genesis of the effusion, either in hydrothorax or in tumor. A number of times Charcot crystals as well as crystals of haemoglobin derivatives were found. With a pneumothorax there occurs in certain cases a milky turbidity or opalescence (nonchylous). Rarely there

were found bile pigments, coal pigments and eosinophilia.—*Über pleurale Ergüsse (insbesondere in morphologischer Beziehung)*, A. *Arnstein and M. Huppert, Beitr. z. Klin. d. Tuberk., 1928, lxx, 660.*—(*H. J. C.*)

Pleurisy in Aged.—There are obviously several aetiological factors concerned in pleurisy, which in the aged may become a very severe disease. It may be dry or it may be associated with a serous, bloody, chylous or empyematous effusion. It is frequently sacculated. It may be derived from subphrenic abscess or other infectious condition of the abdomen. There are two striking symptoms: (1) dyspnoea which may be very marked (even when not associated with neoplasm) and (2) symptoms of cardiac insufficiency, which may be the first sign of a pleural affection. Such signs and symptoms as come from congestion of the liver and spleen and oedema of the joints may antedate any other evidence of cardiac or pleural disease. Pleurisy fails to spread in the aged in the way it frequently does in younger persons. There is usually considerable impairment on percussion, unless the chest is completely ankylosed. Grocco's triangular paravertebral dulness is present in case of fluid. Vocal fremitus is usually present and the breath-sounds distant. The X-ray findings are not unlike those in younger people except for the relative frequency in the aged of the interlobar variety. Pleurisy in the aged may be acute and stormy, or chronic and without symptoms. The common types are those associated with cardiac disease, renal disease, tuberculosis and toxic states. The course will obviously vary a good deal. Therapeutically the problem is important. Morphine for the pain, sometimes dry cupping, attention to the heart and circulation irrespective of the form of the pleurisy or its aetiology; in this, digitalis, strophanthin, caffeine, etc. may be indicated (but theobromine preparations are sometimes not well borne by the patient), early tapping—all these need attention. If empyema is present it may be necessary to perform thoracoplasty. In the latter great age alone is no contraindication.—*Repetitorium der Alterskrankheiten: vi. Die Pleuraerkrankungen (mit Ausnahme der neoplastischen), H. Schlesinger, Deutsche med. Wchnschr., March 8, 1929, lv, 404.*—(*H. S. W.*)

Bilateral Spontaneous Pneumothorax.—A white male, aged 19, who had always enjoyed good health, was seized, on arising one morning, with sharp pain in his left chest. He became breathless five hours after the onset of the pain. Physical signs and X-ray studies revealed a bilateral pneumothorax. After fourteen days, the lungs reëxpanded completely. The patient has been under observation as an outpatient since his discharge for a period of one year. Roentgenographs show that both lungs are fully expanded and there is no evidence of pulmonary disease.—*Bilateral Spontaneous Pneumothorax, D. E. Bedford and H. Joules, Brit. M. J., August 10, 1929, no. 3579, 240.*—(*W. I. W.*)

Tuberculosis of Aorta.—The case cited here is the twentieth reported instance of tuberculosis reaching the aorta by extension from a tuberculous process outside the aorta. In this case, the involvement extended to the media, but no rupture occurred. Clinically, syphilitic aortitis was suspected on account of the history, shortness of breath, pain, pallor, and a positive Wassermann reaction.—*Tuberculosis of the Aorta, L. J. Adams, Arch. Int. Med., November, 1929, xliv, 711.*—(*W. I. W.*)

Tuberculous Polyserositis and Pericarditis.—The following case is an example of polyserositis in a relatively early phase and running a more acute course than usual. A previously healthy woman of 49, hospitalized because of substernal pain, dyspnoea, and continuous fever, was found to have a large pericardial effusion from which tubercle bacilli were grown on culture. There followed in succession left and right pleural effusions, ascites, and oedema of the legs. Pleural fluids, peritoneal fluids, and sputum specimens were examined on several occasions, but tubercle bacilli were not found. Enlarged supraclavicular lymph nodes were present from the onset. Later the liver became enlarged and the spleen barely palpable. An infection of the left quadriceps bursa developed, and from this also tubercle bacilli were grown. In spite of continuous fever, the general condition remained remarkably good for many months. Two years after the onset death occurred from slow congestive heart failure and oedema. The postmortem findings were as follows: *1:* Long-standing caseating tuberculosis in the right fallopian tube (symptomless during life). *2:* Tuberculous infiltration of the spleen with fibrosis, but little caseation, and infiltration of the same type in the cervical nodes. *3:* Chronic serositis of the pericardial, pleural and peritoneal sacs. *4:* A single, very small, puckered scar in the apex of each lung. The typical globular shadow of pericardial effusion was not demonstrated by X-ray until about seven weeks after the onset of illness. A laparotomy, performed before the true diagnosis was made, revealed no abnormal-

ities except moderate enlargement of the liver, the left lobe of which was displaced downward and forward by the distended pericardial sac. The oldest tuberculous lesion discovered was the caseating focus in the fallopian tube. In spite of the long history and the slow but widespread lymphatic spread of the bacilli from this focus to the serous sacs, the spleen, and the mediastinal and cervical lymph nodes, no other lesion was found which showed obvious caseation, although bacilli were actually grown from the fluids of the pericardial sac and quadriceps bursa many months before death. The absence of tissue necrosis and the marked degree of productive and protective fibrosis found in the spleen, the lymph nodes, and the thickened serosa were in strong contrast to the progressive caseation usually associated with widespread tuberculosis, in which the symptoms and mode of death are due to the specific infection and toxaemia. In this case the symptoms and signs of congestive cardiac failure were prominent, and the effects of the widespread infection and of toxaemia relatively slight. It seems reasonable therefore to suppose, on the clinical, pathological, and histological evidence afforded by this case, that chronic tuberculosis of the great serous sacs progressing to the production of "polyserositis" is a condition associated with a high degree of immunity to the infection, and that in more chronic cases than this the infective element is slowly submerged as the clinical picture becomes one of mechanical obstruction to the heart and circulation.—*A Case of Tuberculous Polyserositis with Predominant Pericardial Involvement, L. S. T. Burrell, Dorothy C. Hare and Joan M. Ross, Lancet, December 21, 1929, ccxvii, 1303.*—(*R. M. F.*)

Intestinal Tuberculosis.—Hippocrates said that "diarrhoea attacking a person with phthisis is a mortal symptom." Pathological studies made about a century ago showed intestinal ulceration to be frequent in those dying of pulmonary tuberculosis, but it is only for about a decade that diagnosis during life and prior to the hopeless terminal stage has been possible, although clinical guesses from symptoms and signs occasionally proved correct. It is through roentgenological studies of the barium meal that real surety has been made possible. Early observations were made by Stierlin in 1911 and Pirie in 1917, but it remained for Brown and Sampson, of Trudeau, to study the condition in detail. They find it frequent, even in cases with minimal pulmonary disease, and very nearly constant in far-advanced cases. At the Phipps Institute, of 100 cases autopsied (of pulmonary tuberculosis) 76 showed intestinal ulceration. Although 40 per cent had diarrhoea, the same symptom occurred in nearly 30 per cent without ulceration and other authors have shown similar discrepancies. Finding of tubercle bacilli in the stools has little significance, as in practically every productive case sputum is swallowed. Indefinite digestive disturbances and failure to gain in weight are suggestive. The usual site of lesions is in the terminal ileum, caecum and ascending colon, where is the richest supply of lymphoid tissue together with relative stasis. This region can be rather easily visualized in the X-ray films ordinarily. If, however, there are ulcerations in this region the opaque meal is hurried through, casting little or no shadow on the film (Stierlin's sign). Filling defects in this region after 6 to 9 hours, plus general hypermotility, establish the diagnosis in most cases. *Treatment:* Warmth and quiet are important general measures, since cold and exercise increase peristalsis. At times it is well to reduce the diet to bland foods with little residue, although favorable cases eventually may tolerate a general diet. For pain, opiates and belladonna are effective, and for diarrhoea bismuth and astringents. Of outstanding value is calcium chloride, given intravenously, 5 cc. of a 5 per cent solution. But the best recorded results, until recently, were from artificial heliotherapy, in which the mercury-vapor lamp seems to have advantages over the carbon-arc. General exposures are given. Direct sun exposures may be used in suitable weather and climate. Very recently McConkey and Smith, of the New York State Sanatorium, have obtained even better results with codliver oil and tomato juice, which are available to all. In a few cases surgical resection is applicable, but the mortality is quite high. In general, the earlier proper treatment is instituted the better the outlook.—*Tuberculosis of the Intestines, W. A. Griffin, Section of Tuberculosis, Massachusetts Medical Society, reported in New England J. M., August 29, 1929, cci, 401.*—(*A. P.*)

Liver and Pancreas in Tuberculosis.—Aside from the frequent finding of tubercles, infiltration by fat and an increase in connective tissue in the liver often seem to accompany tuberculosis of the lung. The pancreas in these cases rarely shows tubercles, and only infrequently an increase in connective tissue. The correlation between the changes in the pancreas and those in the liver has received but little attention. The present study deals with the examination of

the liver and the pancreas in 100 cases of chronic ulcerative tuberculosis of the lung and with the data taken from 767 cases of tuberculosis. Attention was directed to the infiltration of the liver by fat, to the interstitial tissue of the liver and pancreas, and especially to the islets of Langerhans. The autopsies were performed from three to twenty-four hours after death. Blocks of the liver and of the tail, midportion and head of the pancreas were made and sectioned. An attempt to count the number of islets of Langerhans proved futile; therefore the diameters of the islets were measured with the aid of a filar ocular and the longest diameters recorded. Thirty-four of these 100 cases of chronic ulcerative pulmonary tuberculosis showed the presence of fat in the liver, but only three of these showed complete infiltration of the liver by fat. There was no relation between the fatty infiltration and the presence of tubercles in the liver and ulcerative tuberculous lesions in the intestines. There was no relation between age, color or sex and the infiltration of the liver by fat. Eighty of the cases showed tubercles in the liver. An increase of connective tissue was present in 67 per cent, but only 4 cases showed changes that were called sclerosis. The pancreas showed tubercles in 4 per cent. In 11 cases an increase in connective tissue was demonstrated. Only 2 cases showed sclerosis. There was no relation between the fibrotic changes in the liver and those in the pancreas, between tubercles of the pancreas and tuberculous lesions of the intestines, or between fibrotic changes of the pancreas and the age. Special attention was given to the size of the islets of Langerhans. In cases in which fat was found in the liver, the largest diameter of the islets measured less than 350 micra. The diameters did not exceed 275 micra in cases of complete infiltration of the liver by fat. The pancreas in 23 cases which showed no fat in the liver had islets measuring more than 350 micra in diameter; ten of these islets measured over 400 micra. On the assumption that larger islets mean increased function, which is questionable, it is suggested that the presence or absence of fat in the liver in cases of pulmonary tuberculosis may depend on the size of the islets of Langerhans together with other factors. The larger islets may cause the sudden hypoglycaemia found in some cases of diabetes complicated with tuberculosis during the course of treatment with insulin.—*Changes in the Liver and in the Pancreas in Chronic Pulmonary Tuberculosis, with Special Reference to the Islets of Langerhans, O. Saphir, Arch. Path., June, 1929, vii, 1026.*—(*J. S. W.*)

Tuberculosis of Spleen with Polycythaemia Vera.—The author reports an interesting case of a rare combination of polycythaemia vera with splenic tuberculosis. The case is interesting in considering the significance of these diseases as to pathogenesis. As a source of the tuberculous infection in the spleen the author considers the partly caseated bronchial lymph nodes found. In reviewing the literature the author refers to 7 similar cases, in which the liver and spleen were found tuberculous, although not as exclusively as in the case reported here. In this case the patient developed the polycythaemia vera 5 years ago while the tuberculous changes were of an early type. The pathogenesis of the splenic tuberculosis is viewed by the author as being due to a *locus minoris resistentiae* of the spleen, and on this basis the terminal tuberculous seedings in the liver and spleen in cases of leukaemia can also be explained. —*Milztuberkulose bei Polycythaemia vera, Erna Sachs, Beitr. z. Klin. d. Tuberk., 1928, lxix, 699.*—(*H. J. C.*)

Mesenteric Lymph-Node Tuberculosis.—The author corroborates the work of Sternberg on the "mesenteric symptom" in mesenteric lymph-node tuberculosis. He reports 30 cases of mesenteric-node tuberculosis, all of which had spontaneous pain in the epigastrium and in which there was, in addition to the lymph-node involvement, involvement of the overlying peritoneum. The inflammatory changes were partly tuberculous and partly of nonspecific nature. The mesenteric symptom is due to the inflamed peritoneum at the mesenteric root. The irritation of the peritoneum can lead to obstipation or diarrhoea, with colicky symptoms as the result of vagus reflex action.—*Zur pathologischen Anatomie der Mesenterialdrüsentuberkulose, M. Bock, Zeitschr. f. Tuberk., 1928, lii, 30.*—(*H. J. C.*)

Codliver Oil and Butter in Tuberculosis of Mesenteric Lymph Nodes.—Codliver oil is less easily assimilated than butter by children, and in mesenteric lymph-node tuberculosis the assimilation of fats is markedly diminished. In this disease butter has advantages over codliver oil as a nutrient.—*Über die Assimilierbarkeit des Lebertranes und der Butter bei Mesenterialdrüsentuberkulose, I. Fertik and M. Pick, Zeitschr. f. Tuberk., 1928, li, 372.* —(*H. J. C.*)

Calcified Abdominal Lymph Nodes.—Tuberculosis of the mesenteric lymph nodes has not infrequently been found at

autopsy, with no evidence of tuberculosis of the lungs or intestines. Pathological and experimental evidence suggests that the bacilli may pass through the intact intestinal wall into the lymphatics. Those which drain the ileum, caecum, appendix, and proximal part of the ascending colon are the most frequently involved. Calcium may be deposited in caseous nodes containing viable microörganisms, and completely calcified nodes may be present alone or in association with actively diseased nodes. This condition may be responsible for unexplained fever and for abdominal symptoms in adults, as well as in children. Symptoms may manifest themselves as obscure, indefinite pain suggesting other abdominal conditions. Calcified mesenteric lymph nodes may be innocuous and they may coëxist with other abdominal diseases, but their shadows on the roentgenogram frequently offer a solution for an otherwise puzzling clinical problem.—*The Significance of Calcified Abdominal Lymph Nodes, R. Golden and R. I. Reeves, Am. J. Roentgenol. & Rad. Ther., October, 1929, xxii, 305.*—(*W. I. W.*)

Association of Surgical and Intrathoracic Tuberculosis.—This study is based upon cases observed at the clinic of the Lakeville, Massachusetts, State Sanatorium during three and one-half years. Despite the prevalent tendency to assume coëxisting pulmonary tuberculosis in nearly all cases of surgical tuberculosis, in this group *bona fide* phthisis was demonstrated in but a small percentage. On the other hand, primary surgical tuberculosis must not be assumed merely because a portal of entry cannot be demonstrated. First, roentgenographic shadows are not infallible; second, abdominal lymphadenitis is not uncommon. Viewing the matter from the phthisiologist's standpoint, of 1058 cases admitted to the Manitoba Sanatorium for pulmonary tuberculosis over three and one-half years, 2.7 per cent had also bone and joint lesions, principally of the spine. Rutland, Massachusetts, State Sanatorium during 1928 had only 1.3 per cent bone and joint lesions. In the present group 200 consecutive chest roentgenographs were studied. The findings were classified as (1) negative, (2) positive, (3) probable, (4) hilum and (5) Ghon lesions. The first two headings are fairly well defined. Under "probable" are included cases of prominent linear markings, extending from the hila upward into the apices. Under "hilum" are included those with definite calcified lymph nodes, marked enlargement of hilum shadows, or both. Lesions of Ghon constitute a group characterized by one or more isolated calcified tubercles well out in the lung fields, healed lesions in otherwise normal parenchyma. Opinions and figures regarding incidence of pulmonary lesions in surgical tuberculosis conflict, ranging from 53 per cent (Almens and Flesch-Thebesius) to less than 9 per cent (Keller). In these 200 patients studied, of whom two-thirds were under 21, and over half not over 16, frank pulmonary tuberculosis was found in 17.5 per cent, of whom 42 per cent had positive sputa. This high incidence suggests caution in prescribing air-baths and heliotherapy. *Conclusions: 1:* In 17.5 per cent of a group of 200 cases of surgical tuberculosis, or in approximately one case out of every six, there is *bona fide* pulmonary tuberculosis. *2:* In 110 of these 200 cases intrathoracic pathological change was demonstrable. *3:* Where no intrathoracic lesion is demonstrable we must not be led to believe that the surgical lesion is primary. Negative findings occur in the absence of calcification in primary lymphatic lesions or where the portal of entry was elsewhere than the chest,—for instance, in the digestive system.—*The Association of Intra-Thoracic Lesions and Surgical Tuberculosis: A Study of 200 Cases, H. Ragolsky, New England J. M., July 4, 1929, cci, 11.*—(*A. P.*)

Tuberculous Rheumatism.—Little evidence has thus far been accumulated concerning the relationship between pulmonary tuberculosis and certain forms of acute and chronic articular rheumatism. The earlier clinicians, such as Bonnet, Charcot and Trousseau, noticed types of chronic arthritis in patients with pulmonary tuberculosis, but considered them merely as coincidental. It was not until 1897 that Poncet suggested the existence of a relationship between these two conditions, but he did not support his views with any bacteriological or pathological proof. Several cases are described in detail to show the association of articular manifestations with pulmonary symptoms. A boy eighteen years of age entered the hospital with signs of acute articular rheumatism involving most of the larger joints. Three months after his recovery from this attack, he succumbed to caseous bronchopneumonia of the left upper lobe. Here the initial articular symptoms predominated and masked a latent pulmonary tuberculosis. In a woman fifty-eight years old progressive ankylosis and deformity involving the joints of both upper and lower extremities was observed. The X-ray films of some of the joints were diagnosed as resembling tuberculous arthritis. Throughout the period of her articular exacerbations there was an associated bilateral pulmonary tuberculosis

with bacillary sputum. From the literature there are quoted similar cases in which the tubercle bacillus was obtained on direct smear and in which there was a positive culture from tuberculous joints. It is believed that these findings are exceptional. On the other hand, stress is laid upon the recent experimental work of Calmette and Valtis, who inoculated the filtrates from tuberculous material and produced an "atypical" form of experimental tuberculosis in guinea pigs. In an effort further to clarify the relationship between these two affections, the exudates from joints of three different patients with various tuberculous manifestations were inoculated into guinea pigs. The clinical diagnoses were acute arthritis (with purpura rheumatica), chronic hydrarthrosis of the knee, and acute purulent ostitis. In every instance, the presence of typical acid-fast bacilli which merely proliferated at the site of inoculation, was determined, but in no case was visceral disease produced in the animal. The cultures from these exudates were also sterile. It is concluded that the organisms of the articular exudates inducing this nonpathogenic form of tuberculosis in guinea pigs are identical with the filterable form of tubercle bacilli designated by Calmette as a tuberculous ultravirus. Although these experiments by no means warrant any broad general conclusions, they suggest that certain clinical forms of arthritis in cases of tuberculosis are caused by a tuberculous ultravirus.—*Rhumatisme Tuberculeux, G. Paisseau and V. Oumansky, Ann. d. Méd., June, 1929, xxvi, 30.*—(*J. G.*)

Treatment of Surgical Tuberculosis.—In spite of many favorable results from heliotherapy in tuberculosis, one has frequent occasion to doubt the efficacy of this treatment. From 1922 to 1927, 103 cases of surgical tuberculosis were treated in the Charlottenburg-Westend Hospital. Records are available on 76 of these cases. Thirty-two of these were treated conservatively and of them seven (22 per cent) were cured. Of the seven, four were perfectly able to work, and two could do some work. Fifteen of the 32 had had no sunlight and three of these had complete healing. Seventeen were treated with sunlight with an average of about a year, and one of these became a complete cure with function of the part, three healed by ankylosis, and three died. Forty-four cases were treated operatively, and a considerably larger percentage of these were healed than those treated conservatively. Surgical treatment requires a shorter time and is less expensive; it renders a larger number of the patients capable of working. Patients should spend a while in the sanatorium after operation.—*Ueber chirurgische Tuberkulose, E. N. Stahnke, Deutsche med. Wchnschr., November 22, 1929, lv, 1966.*—(*H. S. W.*)

Animal Inoculation in Diagnosis of Surgical Tuberculosis.—Material from 126 cases of surgical tuberculosis was studied culturally and histologically and by animal inoculation. A method of reducing the test period was found. Two guinea pigs were injected with the fluid material directly into the region of the lymph nodes at the fold of the knee while pieces of tissue were implanted into the incised lymph nodes. Intercurrent diseases resulting fatally were noted in only 1 per cent of the tests. Preliminary antiformin treatment resulted in the reduction of the positive findings. In 75 of the cases the animal test was positive while the microscopic examination resulted negatively. In 30 per cent the result was obtained in 14, in 35 per cent within 14 to 24, and in 20 per cent within 21 to 28 days. It is maintained that the intraglandular method results in a decided shortening of the test period and that the animal test is the most reliable of those available. The culture method is not conclusive on account of the difficulty arising in the growth of acid-fast saprophytes.—*Der Tierversuch bei chirurgischer Tuberkulose, M. Knorr and H. Friedrich, Beitr. z. Klin. d. Tuberk., 1928, lxix, 385.*—(*H. J. C.*)

Treatment of Orthopaedic Tuberculosis by Vigantol.—A case of severe orthopaedic tuberculosis which had been refractory to all methods of treatment showed remarkable results from the use of Vigantol. All but one of several fistulae completely closed. The patient showed marked clinical improvement.—*Wesentliche Besserung eines Falles von Knochentuberkulose durch Vigantolbehandlung, Plath, Deutsche med. Wchnschr., November 8, 1929, lv, 1886.*—(*H. S. W.*)

Prognosis of Tuberculosis of Joints.—The numerical importance of joint tuberculosis is emphasized by the fact that out of 79,356 cases which were treated in the Department for Orthopaedic Surgery at the University of Vienna during twenty-two years, 10,013, that is, more than 12 per cent, were cases of tuberculosis of bones and joints. In similar institutions, the percentage of these patients reaches as high as 37 per cent. The prognosis of articular tuberculosis has undergone certain changes on account of three important facts: *1:* The conservative therapy has become better established and the indications for radical

surgery are now better defined. *2:* Certain diseases of the joints have become recognized as nontuberculous, which previously have frequently been mistaken for tuberculosis. *3:* The social and economic conditions have undergone marked changes since the war. Diseases which have previously been mistaken for tuberculosis are juvenile osteochondritis deformans (Calvé-Legg-Perthes), arthritis deformans, osteomyelitis, syphilitic coxitis, Kümmel's disease of the vertebra, the dorsal kyphosis of adolescence, Strumpell-Marie's ankylosis of the vertebra, Schlatter's disease, and so on. There is very little doubt that some of these cases have previously been classed as tuberculosis. They all are prognostically more favorable than tuberculosis, leaving the group of true tuberculous diseases with a more serious outlook than previously supposed. The postwar period brought a tremendous depression of economic conditions, with a coincident increase in tuberculosis morbidity and tuberculosis mortality. On the other hand, more free clinics and a more thorough education of the public lead to more frequent early diagnosis. In judging the individual case, the localization of the disease is an important prognostic factor. Tuberculosis strictly localized in bones has a better prognosis than foci which invade joints. Lesions of the upper extremities heal more easily than those of the lower limbs. The pathological anatomical character of the lesion influences its prognosis. Strictly synovial lesions with serous exudates are more favorable than proliferative and purulent processes. Lesions in children are usually better circumscribed than in older people, and for this reason prognostically more favorable. The causes of death following tuberculosis of bones or joints are as follows: (1) progression of concomitant tuberculous lesions in the lung or in other vital organs, (2) miliary tuberculosis, (3) tuberculous meningitis, (4) amyloid degeneration, (5) general sepsis, and (6) nontuberculous disease of other organs (heart, kidney, etc.). The discussion between advocates of conservative treatment and of radical surgery has largely ceased, since it is well recognized now that radical surgical procedures usually do not improve the prognosis. They are particularly contraindicated in children, because trauma to the epiphysis causes impairment in growth. The question whether a tuberculous joint should be immobilized by plaster cast or should be treated by extension depends largely on the individual indication. Many a joint is more useful when safely healed with ankylosis than with stretched capsule and ligaments. Sanatorium treatment with extension and heliotherapy shows a mortality of 3 to 6 per cent, and of cure 73 to 85 per cent (Kisch, Rollier). Orthopedic treatment with plaster casts has a mortality of 10 per cent and a percentage of cure of about 75 per cent. One of the most important facts in the treatment is the persistent patience of both physician and patient. The length of time which is required for a complete cure depends both on the type and the localization of the lesion. If treatment can be started before marked destruction has occurred, a satisfactory cure without deformities can be predicted in most cases.—*Die Prognose der Gelenkstuberkulose, E. Deutsch, Wien. klin. Wchnschr., October 3, 1929, xlii, 1287.*—(*M. P.*)

Tuberculosis of Spine.—One hundred cases of tuberculosis of the spine were studied to determine the presence of abscesses. Fifteen revealed abscesses clinically and 14 roentgenographically, or an incidence of 29 per cent. In the lower cervical region, abscesses may displace the oesophagus and trachea forward and result in difficulty in speech, swallowing and breathing. In the dorsal region they less frequently come to the surface, and can be determined only by roentgenographic studies. In the upper dorsal region, they incline to work upward toward the upper opening of the thorax. In the middorsal region, they vary in form and location and usually develop laterally, in globular form, perhaps working backward through the rib articulation and appearing on the back. In the lumbar region an abscess may generally be palpated in the abdomen and iliac fossa, but frequently is evident only by roentgen examination. A decrease in the size or early absorption is a favorable sign, while calcification in an abscess generally indicates a quiescent or healing process.—*Abscesses in Tuberculosis of the Spine, J. W. Sever, J. Am. M. Ass., June 1, 1929, xcii, 1822.*—(*G. L. L.*)

Benign Tuberculous Spondylitis.—The most important function of the roentgenologist in regard to tuberculous spondylitis is the establishment of an early diagnosis. The chance for complete recovery is much better if treatment can be started before extensive bony deformities have occurred than after marked destructive processes have developed. In order to arrive at an early diagnosis, it is absolutely necessary to ray the spine, both in the sagittal and in the lateral diameters. One of the earliest roentgenological signs is the appearance of a small central focus which does not, as yet, alter the contours of the vertebra. In other cases, the only roentgenologically

demonstrable sign is abscess-formation without demonstrable bone lesion. Abscess-formation is present in more than 80 per cent of all cases. Generally, it is easier to recognize early lesions in the thoracic spine than in the cervical or lumbar portion. It was observed in numerous instances that patients with the signs of a quite early and small lesion, some of which were discovered incidentally, had had slight symptoms of spinal involvement over a period of years. They had complained, off and on, of increased fatigability, slight dorsal pain of a rheumatic character, slight pain on bending down, etc. In all these patients, with very chronic and slight symptomatology, only abscess-formation or, in some, minimal bone foci without deformities were observed. Observation revealed that some of these processes progressed only very slightly during a period of several years, even in patients, who, on account of the minimal symptomatology, had refused treatment. Some of these lesions will heal spontaneously, but others will eventually go on to a more rapid and more destructive progression. Another benign type of tuberculous spondylitis is the fibrous tuberculosis of the vertebrae, as described by Kienböck. In this type of lesion, there is no abscess-formation; the involved vertebral body is diffusely thinned and it may, as a whole or in part, be slightly compressed. The upper and lower margins appear darker, blurred and sometimes irregular in outline. This may be associated with a slight curvature. The benign forms of tuberculous spondylitis are frequently not recognized for a long time and are diagnosed as rheumatism, chronic arthritis, lumbago, etc. They usually heal well under conservative treatment.—*Röntgendiagnostik gutartiger Formen tuberkulöser Wirbelerkrankung (Spondylitis tuberculosa benigna), M. Sgalitzer, Wien. klin. Wchnschr., April 18, 1929, xlii, 562.*—(*M. P.*)

Albee Operation in Tuberculous Spondylitis.—The author reports on 46 cases of tuberculous spondylitis treated by the Albee operation, and observed over a period of more than 5 years. Among these 11 (24 per cent) died, 6 (13 per cent) showed unsatisfactory results, 6 (13 per cent) improvement, and 23 (50 per cent) were healed. It is pointed out that most of those treated had to be released shortly after the operation and carried on heavy labor. Even though the figures are not as favorable as after the sunlight treatment they exceed by far those of any other ambulant treatment. Abscesses are not influenced by the operation, and paralysis must be taken care of prior to operation.—*Zur Bewertung der Wirbelsäulenversteifung durch freie Knochenplastik bei der Spondylitis tuberculosa, E. König, Arch. klin. Chir., 1928, cli, 505.*—(*H. J. C.*)

Albee Operation in Tuberculous Spondylitis.—The Albee operation has been used for over 10 years by the author on more than 100 cases and is highly recommended. Among these cases there were two deaths immediately after operation, and one child died of meningitis following too deep a splitting of the vertebrae, and an adult as the result of paralysis. Fifty cases were performed five years ago and one-half of these are completely healed, 13 per cent are improved, 11 per cent are not benefited, and 26 per cent are dead. None of these patients could permit a prolonged sanatorium treatment and most of them had to be ambulant a number of weeks after the operation and be returned to heavy bodily labor. The original Albee operation was preferred. Alloplasty is advised against.—*Die wirbelversteifende Operation bei Wirbeltuberkulose, M. Kirschner, Zeitschr. f. Tuberk., 1928, li, 106.*—(*H. J. C.*)

Tuberculosis of Symphysis Pubis.—A patient, who years before had had pulmonary tuberculosis and cervical adenitis, developed a lump in the left groin which was of six months' duration when first seen. Operation revealed tuberculosis of the symphysis pubis. X-ray showed a marked separation of the symphysis. Pain upon walking caused the patient to remain in bed, in plaster spicas, but without improvement. Fusion of both sacroiliac joints enabled her to get up and about. There is new bone deposit and the patient has been well since (now two years).—*Tuberculosis of Symphysis Pubis, H. C. Blair, J. Bone & Joint Surg., April, 1929, xi (o. s. xxvii), 401.*—(*H. S. W.*)

Tuberculous Osteitis of Knee and Rib.—A case of synovial tuberculosis with extension to the bones of the knee-joint and metastasis to a rib in a child of 23 months is recorded. The rib underwent pathological resection. Aspiration of the lesion at the knee and excision of the abscess involving the rib resulted in a cure of both areas. Tuberculous osteitis of the rib is a very uncommon disease.—*Tuberculous Osteitis with Pathological Resection of Seventh Rib, A. M. Rechtman, J. Bone & Joint Surg., July, 1929, xi (o. s. xxvii), 557.*—(*H. S. W.*)

Tuberculosis and Nervous System.—Of all the infections of the nervous system, with the exception of syphilis, tuberculosis is the most frequent, especially during the periods of infancy, childhood and adolescence. Tuberculoma, chronic and acute tuberculous meningitis and spinal caries are always to be considered. The cervical sympathetic-nerve supply may be involved in the local morbid process and oculopupillary phenomena develop on one side.—*Tuberculosis and the Nervous System, F. Buzzard, Brit. M. J., May 11, 1929, no. 3566, 839.*—(*W. I. W.*)

Tuberculous Meningitis with Unusual Cerebrospinal Fluid.—*Summary of Case Report from Massachusetts General Hospital:* A white man, aged 24, was admitted to the hospital July 7, 1928, complaining of headache and vomiting. His father, mother, sister and uncle had died of tuberculosis when he was a child. Two weeks before admission the headache began, and ten days later there were dizziness and vomiting, which continued four or five times a day, while the headache became constant and severe. The patient's mental condition on admission was clear, his vision good and the eye-grounds showed merely slight venous engorgement and blurring of the margin of the right disc. There was no stiff neck or Kernig sign. The first lumbar puncture showed a pressure of 150 mm. of water, which on jugular compression rose to 240 mm. The cell count showed only 4 lymphocytes per cu. mm. The pulse-rate ranged between 45 and 70. On July 11, the pupils were unequal and there was partial aphasia, and the following day there was mental confusion. Lumbar puncture, July 13, showed an initial pressure of 250 mm. water and 205 lymphocytes per cu. mm., while the temperature rose sharply to 101.8°F. The patient soon became lethargic and then semicomatose, death occurring July 22, about two weeks after admission, and four weeks after the onset. A part of the cerebrospinal fluid injected into a guinea pig produced marked tuberculosis. *Cerebrospinal Fluid in Tuberculous Meningitis:* The pressure is considerably increased in nearly all cases, ranging from 300 to 700 mm. of water according to a recent textbook authority. The same authority gives the average cell count as 112, the range being from 0 to 1,000 and reports 5 cases with normal counts. Reux also reports 3 cases with counts of 5 to 6 cells. All authors report an increase of protein in most cases and the authority previously mentioned gives an average of 264 mgm. per 100 cc. In uncomplicated brain tumor the protein is rarely so high as was found in the case reported, 83 to 87 mgm. per 100 cc. The sugar-content of the fluid shows a change soon after distinct clinical symptoms are established and varies between 11 and 31 mgm. per 100 cc. (Greenfield and Carmichael) with an average of 27 mgm. according to the textbook *The Human Cerebrospinal Fluid.* The chlorides are progressively reduced and readings below 600 mgm. per 100 cc. are very suggestive. Striking features illustrated by this case are (1) that the clinical signs may antedate for some time the cell increase in the cerebrospinal fluid, and (2) that the fluid may change rapidly in a few days from a normal to a pathological state. *Conclusions: 1:* Tuberculous meningitis has an insidious onset and even with an established clinical picture the cerebrospinal fluid changes may be slight. *2:* The cerebrospinal fluid may change rapidly in a few days. *3:* The temperature may be normal through part or the entire course of the disease.—*Tuberculous Meningitis with an Unusual Cerebrospinal Fluid, J. W. Watts and H. R. Viets, New England J. M., April 11, 1929, cc, 757.*—(*A. P.*)

Relation of Tuberculous Meningitis to Other Forms of Tuberculosis.—The author found 12 cases of tuberculous meningitis among 4,700 children, and the low incidence is viewed as due to the age-period of 7 to 15 years of the cases studied. A difference in sex, as was noted for infants and early childhood with a greater incidence among boys, did not hold in this series. There was a greater incidence during the months of March and July, and of the acute infectious diseases measles was most predisposing. The rare occurrence of meningitis during school age is viewed as an increased resistance to infection, which is considered important in the occurrence of tuberculous meningitis. A relation between different forms of tuberculosis and tuberculous meningitis was not determinable.—*Die Meningitis tuberculosa in ihrer Beziehung zu den Verlaufsformen der Tuberkulose, K. Klare, Zeitschr. f. Tuberk., 1928, lii, 25.*—(*H. J. C.*)

Meningitis.—Eight patients with meningitis all definitely nonsyphilitic are reported, in each of which there was a positive Wassermann reaction in the spinal fluid. Five had tuberculous meningitis, one diplococcic meningitis, one was due to trauma, and in one the organism could not be obtained.—*The Occurrence of Positive Wassermann Reactions in the Spinal Fluid of Tuberculous and Other Non-syphilitic Cases of Meningitis, K. Schaffle and M. Riesenberg,*

Am. J. M. Sc., November, 1929, clxxvii, 632.
—(W. I. W.)

Renal Tuberculosis.—Tuberculosis of the kidney is most common between the ages of 20 and 40, and the clinical picture of the disease is varied, there being at least seven clinical types. In the majority of cases the most characteristic symptoms are referable to the bladder, there being urgency, frequency, burning during micturition, and pyuria with or without haematuria. Methenamine is rarely of assistance and often irritates the bladder; irrigations are of little help. A second type simulates nephrolithiasis, with more or less colicky pain and attacks of bleeding. The roentgenograph may show definite shadows of porous-looking calculi in the kidney region. A third type suggests either essential haematuria or renal neoplasm, with massive bleeding and colicky ureteral pains. A fourth type is very confusing, there being no bladder symptoms. A fifth type represents those cases which begin like the first and most common type, with later subsidence of symptoms and occlusion of the ureter. A sixth type simulates subacute or acute pyelonephritis, and a seventh presents itself as perinephric suppuration, in which the nephrectomy demanded by persistent sinus-formation following drainage reveals the renal condition. The general health of the patients rarely suffers unless mixed infection with chills and fever develops. When the disease is bilateral, however, suburaemia or uraemia develops fairly early in 10 to 20 per cent. Physical examination of the kidney is of little value; vaginal palpation of the thickened ureter is of diagnostic import. Cystoscopy and ureteral catheterization is the most important diagnostic measure; in some cases spinal or gas-oxygen anaesthesia is necessary because of the bladder condition. The cystoscopic picture varies from hyperaemia in the earlier cases to rigidity and oedema of the ureteral orifice, small mucosal haemorrhagic areas, and later tubercle development resulting in sharply cut-out, irregularly shaped ulcers. As ureteritis develops, the ureter shortens and there is retraction of the orifice. As a result of mixed infection, granulations develop in the ulcer base, and as more of the bladder becomes involved contraction occurs with decrease of capacity. The bladder lesions are always most marked at the ureteral orifice on the side of the renal tuberculosis. In females ulcerations occasionally extend into the urethra. Indigo carmine is used in cystoscopy to determine function; in early cases there may be no delay in excretion as compared with the healthy kidney. The finding of the tubercle bacillus in the smear has proved more reliable than the guinea-pig inoculation, although the latter is more sensitive. The author has found the guinea-pig positive in 18 per cent of the healthy second kidneys examined; there is possibility of contamination during passage of the catheter through the bladder, or by reflux up the ureter; only late collections should be used for smears and inoculations. When the catheter cannot be introduced far enough to obtain satisfactory specimens, one must rely on the bladder picture, tubercle bacilli in the bladder urine, and absence of pyuria or bacilli from the second kidney. In a certain percentage of cases the second kidney may show evidence of a toxic nephritis, which clears up after nephrectomy on the diseased side. In males prostatic tuberculosis may be confused clinically with renal tuberculosis, and contamination of collected specimens must be guarded against. If obtained with care from catheterized specimens, there is little danger of confusing the tubercle with the smegma bacillus. The author has found them in the smear in 89 per cent of renal cases; they are most difficult to find in old chronic cases with much pyuria; here the antiformin method may be necessary. In many cases the bacilli have been seen in smears, yet the pig failed to develop disease. In rare cases, difficult to diagnose, the use of activating doses of tuberculin results in showers of bacilli. If the diagnosis can be made without pyelography, the added trauma should not be inflicted on the patient. One is occasionally forced to make an exploratory operation to decide whether one or both kidneys are tuberculous, depending on visible cortical changes after capsule stripping, or palpation of the ureter. In doubtful cases, pole to pole section, exploration and resuture can be done with only a moderate functional disturbance. The importance of surgical treatment is unassailable, no careful observer having yet reported definite chronic renal tuberculosis cured spontaneously or by tuberculin, heliotherapy and hygiene. The belief that the disease is usually bilateral because of haematogenous origin is illogical, as *Staphylococcus aureus* embolic abscesses are also haematogenous, but practically always unilateral. In children, renal tuberculosis is more frequently bilateral. Very rarely are indications present for operative interference in bilateral disease, and the majority of such patients usually die shortly after nephrectomy. Nephrectomy with removal of the upper ureter is the operation of choice, except that in badly stenosed and dilated ureters a pararectus extraperitoneal incision for removal of the lower ureter at

the same time is indicated. Sinuses or tuberculosis of the whole wound follows in about 25 per cent of cases; the causation is in dispute, but it is probably not due to diseased ureter, as it occurs as frequently when the entire ureter has been removed; the author is convinced that the exploration is in the traumatic bacillaemia induced by the operator, the tubercle bacilli arriving in the vascular muscular wound; the anterior rectus sheath is avascular, and, where done, the pararectus incision always heals by primary union, although the stump of the diseased ureter is at its bottom. Postoperative treatment of persistent bladder symptoms is difficult. Irrigations and topical applications have varying results; low-voltage roentgen therapy and heliotherapy occasionally seem beneficial. Electrocoagulation of the surface of the ulcers, although gas-oxygen anaesthesia may be necessary, gives worth-while results. Open, active pulmonary tuberculosis warrants delayed surgery; if the symptoms interfere with the patient's ability to cope with his pulmonary lesion, nephrectomy under spinal anaesthesia is indicated. There is a 10 to 20 per cent chance of later tuberculous involvement of the second kidney, but miliary tuberculosis and pulmonary tuberculosis are the most serious dangers that these patients face.—*The Diagnosis and Treatment of Chronic Tuberculosis of the Kidney, E. Beer, J. Am. M. Ass., June 8, 1929, xcii, 1912.*—(*G. L. L.*)

Tuberculous Pyonephrosis Diagnosed Spondylitis.—Report is given of a woman of 34 years who for 14 years had had ill-defined symptoms of "bladder" trouble, with one year of pain in the lumbar region and for several months a fluctuating, nonpainful, noninflammatory abscess in the left flank, and pulmonary tuberculosis of the left upper lobe of the lung. There was tenderness of the lumbar spine and a diagnosis of tuberculous spondylitis with psoas abscess. Pus was aspirated on several occasions. There was fever; several fistulae developed which discharged a thin, milky fluid. X-ray revealed normal vertebrae but showed a large shadow in the left kidney and cystoscopic examination revealed a pyelonephrosis. Extirpation of the left kidney was done. The organ was extensively diseased and calcified and there was a large perinephritic abscess.—*Tuberkulöse Pyonephrose, als spondylitischer Senkungsabsze behandelt, M. Kirschner, Deutsche med. Wchnschr., November 8, 1929, lv, 1885.*—(*H. S. W.*)

Curettage in Tuberculous Epididymitis.—Certain Italian physicians have reported favorably upon treating tuberculous epididymitis by injecting small amounts of an iodide solution into the tuberculous nodule when this has not undergone caseation. If caseation has supervened the nodule is incised, the cheesy portion curetted out, and 10 per cent iodoform and glycerine injected, these injections being repeated on the third and seventh days, as healing progresses. Nothing of this type has been done in this country, but five cases of curettage are reported by the author. It is a particularly desirable procedure in persons who have had one testicle removed because of tuberculosis, or some other disease. The operation consists of splitting the epididymis throughout its length, curetting out all the tuberculous foci and leaving the focus open with edges sutured to the skin. The wound remains open and heals very slowly. At eight or nine months usually a small tuberculous nodule with a sinus is all that is left in the testicle, the remainder of the epididymis having returned to its normal state. It is then fairly easy to excise the remaining areas of tuberculosis and leave an organ free from disease. Such a procedure is more satisfactory than the injection of iodides, if epididymectomy can be done. In a few cases bilateral epididymectomy or a vasotomy on the sound side has been done even though the disease was confined to one side. This has been done prophylactically. In several cases in which no sterility existed on the nondiseased side, the latter was left intact, but within eighteen months of the operation two of three cases had developed a tuberculous epididymitis on the previously healthy side. In cases in which epididymectomy or vasotomy was performed prophylactically, no disease developed subsequently. Protective removal of the sound epididymis is to be recommended.—*The Treatment of Genital Tuberculosis, E. L. Keyes, Am. J. Surg., February, 1928, n. s. iv, 133.*—(*H. S. W.*)

Atrophy of Testicles in Pulmonary Tuberculosis.—The author examined the testes of 26 men between the ages of 16 and 49 years that died of pulmonary tuberculosis. The average weight of the testes was not obtained, and in 23 cases there was a definite atrophy while the interstitial tissues were frequently increased. The fat content of the testes was independent of the atrophic changes. Spermatablasts and spermatocytes were less harmed than the other cells.—*Über Hodenatrophie bei Lungentuberkulose, A. Sylla, Virchow's Arch., 1928, cclxix, 480.*—(*H. J. C.*)

Primary Tuberculosis of Prostate.—This is a rare entity, according to all investi-

gators. Saxtorph in over 10,000 necropsies found only 9 examples, and Walker, in 1911, after a careful search, reported only 3 cases. While it is open to question to report a case on clinical evidence alone, the carefulness of observation and the follow-up records, showing several years with absence of symptoms after operation, appear to justify consideration of the case as primary prostatic tuberculosis. *Case Report:* A man, aged 52, a weaver, was admitted to the Mary Fletcher Hospital complaining of frequent and difficult urination. His symptoms dated back fifteen years, and were aggravated by riding in an automobile. Four weeks prior to admission he had acute retention, necessitating catheterization. He appeared sick, undernourished, and had a pinched expression. Examination was negative except for an enlarged nodular prostate. A two-stage suprapubic prostatectomy was done, enucleation being easy. Prior to discharge the lungs and genital tract were checked up and found negative. Two years and four months after operation the patient feels well and has no symptoms. The pathological examination showed tuberculosis and adenomatous hyperplasia of the gland.—*Primary Tuberculosis of the Prostate, W. G. Townsend, New England J. M., May 23, 1929, cc, 1085.*—(*A. P.*)

Tuberculosis of Uterine Adnexa.—Adnexal tuberculosis introduces many difficulties into clinical diagnosis and every diagnostic aid should be drawn upon. The author describes an abdominal protective action found upon superficial palpation which he designates as a "subdefense" reaction. This reflex *defense musculaire* stands in close association with the involvement of the peritoneum in the tuberculous process. The absence of this symptom naturally does not speak against the presence of an adnexal tuberculosis.—*Zur klinischen Diagnose der Adnextuberkulose, J. Braude, Centralbl. f. Gynakol., 1928, lii, 1848.*—(*H. J. C.*)

Primary Tuberculosis of Skin.—Of the types of cutaneous tuberculosis, the so called *ulcus tuberculosum* is one of the most characteristic. The ulcer is at first very shallow and crusty. Later it is filled with granulations, it bleeds easily, and the edges are irregular, undermined and thickened. The thick scale overlying the ulcer is frequently perforated by pinpoint openings through which pus may exude. The surrounding tissue is often oedematous. The surrounding skin is pale blue. Ulcers develop especially in softer places of the skin and mucous membranes. Pressure with glass gives the impression of lupus spots especially in the tissue surrounding the primary forms as far as 5 cm. away. The irregularity of this spread cannot be readily explained by lymphatic dissemination. The disease (tuberculosis of skin) may be seen in a nonulcerative stage and ought to be thought of as primary because the areas drain to the regional lymph nodes. The regional nodes nearest the lesion sometimes escape swelling while those next in the line of drainage may be greatly involved; for instance, in tuberculosis of the hand, it may be the axillary and not the epitrochlear lymph nodes that become involved. There is frequently a widespread lymphadenitis of moderate degree, associated with this primary cutaneous disease. The site of the cutaneous lesions may be anywhere over the body, but it is more commonly the extremities. The tuberculin reaction is almost always positive. Although this condition is very clear cut clinically, it offers very great difficulties to the pathologist. There is a nodular infiltration in the subcutis that progresses toward the epithelium which breaks down in ulcer formation. There is usually a surrounding fibrosis, which sometimes undergoes destruction through the formation of areas of small-cell infiltration. In the early stages they do not differ from experimental tuberculosis in that there is more or less infiltration about blood-vessels. Secondary lesions in superficial tissues may evolve from the deeper primary foci. The histological picture is so varied that we must think that it rests upon special influences. The readiness of the tissues to react must depend upon endogenous factors as well as exogenous infection. With every case of primary tuberculosis of the skin, we must suspect the presence of visceral tuberculosis and ascertain if this be so before we can determine whether the disease is truly primary in the whole body, or only primary in the skin.—*Zur Klinik und Pathologie der primaren Hauttuberkulose, O. Dittrich, Deutsche med. Wchnschr., June 14, 1929, lv, 996.*—(*H. S. W.*)

Primary Tuberculosis of Skin.—A case of primary skin tuberculosis originating as an ulcer of the perineum is reported in a 5-month-old child. Regional lymph-node involvement occurred and both lesions revealed the histological structure of tuberculosis. An intracutaneous injection of 0.000,000,001 mgm. tuberculin was positive. Two months prior to this the Pirquet test was negative. The child died at 1½ years of age with miliary tuberculosis and thrombosis of the left renal artery.—*Zur Kasuistik der primären Hauttuberkulose, S. Levy, Beitr.*

z. Klin. d. Tuberk., 1928, lxx, 784.—(H. J. C.)

Lupus Vulgaris.—Lupus vulgaris is not a superficial disease of the skin. It involves the lymphatics, superficial fat, and deep fascia, except in the very earliest lesions. About 50 per cent of these cases have some tuberculous infiltration of the mucous membranes of the nose and mouth. Excision is the method of choice in many early lesions. In the advanced cases of lupus, good results have been obtained by the Finsen's light treatment.—*Lupus Vulgaris, R. Hallam, Brit. M. J., November 16, 1929, no. 3593, 885.—(W. I. W.)*

Case of Inoculation Lupus.—A 4-year-old boy, without clinical or roentgenologically manifest symptoms of tuberculosis, stepped on a rusty nail, from which a tuberculous lesion developed, and within 10 to 14 days there resulted tuberculous inguinal lymph nodes. The condition resembled that of a circumcision tuberculosis. The author reports a case as the only and first one in which a lupus vulgaris developed on a tuberculous primary complex of the skin. This is important in that it indicates that lupus can develop without the presence of a secondary or tertiary allergic condition in the body.—*Über einen Fall von Inokulationslupus mit Beteiligung der regionären Drüsen. (Zugleich ein Beitrag zur Frage des tuberkulösen Primärkomplexes der Haut,)* W. *Gerling, Beitr. z. Klin. d. Tuberk., 1928, lxix, 1.—(H. J. C.)*

Climate and Lupus Vulgaris.—During the course of 25 years' experience in studying lupus vulgaris it was found that there was usually an improvement during the summer months, and this especially during the months of August and September, which was correlated with the amount of sunshine. The exacerbations of lupus occurred mostly in the months of February and the first half of March. The type of winter or summer is significant for the grade of improvement or exacerbation: dry, warm, sun-rich summers and dry, cold, sun-rich winters are favorable for lupus, while moist, warm, sunny summers and wet, cold, mild winters are unfavorable.—*Die Bedeutung von Jahreszeit und Witterung für den Lupus Vulgaris, F. Veiel, Zeitschr. f. Tuberk., 1928, li, 129.—(H. J. C.)*

Skin Tuberculosis and Immunity.—The author attempts to elucidate the protective mechanism occurring in lupus in that the serum from cases with tuberculides, spontaneously healing lupus and favorable types of internal tuberculosis was used, without, however, obtaining a beneficial effect in any cases with active skin tuberculosis. Even in favorable lupus cases it was not possible to produce lupus transplants in the skin, and it is therefore believed that the protective mechanism against tuberculosis in the skin is anchored to the cells and is not to be found in the blood or serum.—*Hauttuberkulose und Tuberkuloseimmunität, P. Linser, Zeitschr. f. Tuberk., 1928, li, 124—(H. J. C.)*

Miliary Tuberculosis.—In the two cases reported two points as regards diagnosis are emphasized: (1) the importance of clinical familiarity with the disease and (2) the proper roentgenographic exposure. The first case was that of a girl twenty-one years old. The illness had a sudden onset, the temperature was of the septic type, and all laboratory data were of little or no significance. Physical and neurological findings during the first seven weeks were negative. A short while later, because of double vision, and the presence of 50 cells (lymphocytes) per cc. in the cerebrospinal fluid, a diagnosis of encephalitis lethargica was made. The first X-rays of the chest were overexposed and the diagnosis missed. A second set of films established the diagnosis of miliary tuberculosis. Necropsy showed tuberculous meningoencephalitis. Tubercle bacilli were found in the cerebrospinal fluid. Postmortem examination was not allowed. The second case was that of an infant aged four months. Though the family history was negative for tuberculosis and physical examination revealed only a few râles in the chest, X-ray examination showed miliary tuberculosis. These cases teach us that a patient ill of acute miliary tuberculosis may not necessarily appear very sick even though he may be far advanced in the malady, and that with an overpenetrated or blurred plate the diagnosis is likely to be missed.—*Errors in Diagnosis of Acute Miliary Tuberculosis, M. J. Schroeder, Med. J. & Rec., July 17, 1929, cxxx, 65.—(H. McL. R.)*

Treatment of Pulmonary Tuberculosis.—The three requisites for ultimate arrest of pulmonary tuberculosis are rest of body and mind, fresh air and a well balanced diet rich in calories. Postural rest tends to shorten the stay in hospital, and facilitates healing, by splinting the diseased side and decreasing the diaphragmatic excursion and aeration of the lung. Artificial pneumothorax is indicated in unilateral progressive pulmonary disease that has not responded to a reasonable period of enforced rest; in severe or persistent pulmonary haemorrhage;

following the removal of fluid in massive pleural effusions; and in maintaining collapse of spontaneous pneumothorax. Pleural adhesions prevent success in more than 50 per cent of suitable cases. Supplementary phrenicotomy is indicated in those cases in which adhesions prevent collapse of a lower lobe; also as an independent measure on the more diseased side when the extent of involvement of the other lung prohibits pneumothorax. Extrapleural thoracoplasty is indicated when the disease is essentially unilateral and productive and prolonged rest and pneumothorax have failed; in patients in whom there is reactivation following reexpansion of the lung after pneumothorax; in persistent haemorrhage when pneumothorax is impossible; and as a supplement to pneumothorax rendered incomplete by adhesions. It is contraindicated in active bilateral disease, in advancing caseous tuberculosis, and when there is extensive tuberculosis in other organs, nephritis, hepatic cirrhosis or serious cardiac involvement.—*Modern Methods of Treatment of Pulmonary Tuberculosis, J. A. Sevier, J. Am. M. Ass., September 28, 1929, xciii, 982.—(G. L. L.)*

Factors in Recovery from Tuberculosis.—The factors involved in recovery are many. In no other disease does recovery depend so much on the patient's temperament. Individual resistance to tuberculosis is probably the greatest single factor in recovery. No two individuals have this quality in the same degree. There is strong evidence that such resistance is related in some way to inherited family and racial characteristics. Another factor, that of financial standing, is becoming yearly of less importance, as a result of the more general recognition that tuberculosis is an economic problem as well as an infectious disease. The element of time is closely associated and bound up with these other factors, and while a favorable combination of factors may greatly shorten the time of cure, sufficient state and county aid should be provided to minimize the danger that follows too early return to work. Factors which materially aid or hinder the favorable outcome of the case regardless of favorable economic and temperamental factors are those relating to the lesion itself, the extent of the disease and when discovered, the time when diagnosis was made, and the type of disease, whether acute or chronic.—*Factors in Recovery from Tuberculosis, R. A. Peers, J. Am. M. Ass., November 9, 1929, xciii, 1450.—(G. L. L.)*

Uses and Limitations of Sanatoria.—In many of the great municipal tuberculosis institutions the idea seems to prevail that the beds are for far-advanced hopeless cases. Such cases are given priority, and allowed to remain indefinitely, reaping the benefits of care and instruction that could well be applied in home treatment, while thousands in the community are denied the merest pretense of such care. Speeding up of activities and constructive innovations will aid in answering the problem in the sanatorium, as a patient receives more benefit from a few months' stay in an institution in which he is subjected to active, scientific treatment than he will from a two years' stay in a sanatorium in which indifference and passivity dominate. The patient should be well drilled with the physiological principles on which the regimen of rest, fresh air and food are based, so that he is well prepared to carry on at home after a shorter stay in the hospital. Absolute rest should be enforced when indicated, and the assignment of slight chores to patients is very often misguided economy, resulting in longer stay in the sanatorium, and perhaps the loss of chance for recovery. Exercise, when indicated, should be established on the basis of a medical prescription, carefully regulated and supervised. Plenty of fresh air should be obtained without the disadvantage of cold and physical discomfort. First-class quality in the food, scientific and painstaking preparation by a trained dietitian, and efficient service are essential. The merging of the old sanatorium plan into the general hospital plan requires changes in equipment and personnel, the provision of modern operating rooms and equipment, and the appointment of a competent attending and consulting staff. The resident staff should be minutely schooled in diagnosis. A properly functioning consultant staff brings about a marked improvement in the morale of both nursing and medical personnel. When possible, it redounds greatly to the benefit of the medical profession and community for the consulting staff to give clinics on the various phases of tuberculosis to both graduate and undergraduate students. The sanatorium unit and the field-service unit should function harmoniously, with a view toward preserving, as far as possible, a sanatorium atmosphere in the home, both in the presanatorium and postsanatorium life of the patient. In furtherance of this scheme of coöperation, the incidence of tuberculous and nontuberculous surgical complications among out-patients might be more carefully checked, and, when possible, the patient should be sent to the sanatorium for operation, to resume his home routine after a brief period of convalescence. In addition to this plan, the Chicago Municipal

Tuberculosis Sanitarium established a pneumothorax clinic at one of its centrally located dispensaries, in order to eliminate the injudicious practice of requiring discharged patients to travel long distances for a refill.—*Uses and Limitations of Sanatoriums for the Tuberculous, B. Goldberg, J. Am. M. Ass., August 24, 1929, xciii, 586.*—(*G. L. L.*)

Dispensary Treatment of Tuberculosis.—The primary object of a tuberculosis scheme being the prevention of the spread of the disease, the dispensary must provide for the examination of doubtful cases and contacts. Constant supervision of cases is essential, and unless some form of treatment is given, patients cease to attend. If possible, special forms of treatment not readily obtained from the general practitioner should be available. These include tuberculin, artificial pneumothorax and sanocrysin, all of which measures should have been begun in a sanatorium. Tuberculin treatment is considered a great asset to the dispensary physician. It frequently brings about marked improvement in the tuberculous adenitis of children. Furthermore, apart from the specific results obtained, the morale of patients receiving tuberculin is strengthened because they feel that something is being done for them. Sanocrysin therapy should be controlled by urine analysis for albumin. Artificial-pneumothorax refills can easily be given if a couch is provided for a period of rest after the refill, and if arrangements are made for an occasional X-ray examination. Dispensary treatment is not proposed as a substitute for sanatorium treatment, but as an adjunct to it. An average of two years of active treatment is necessary to secure quiescence of even the earliest cases, and by continuing special forms of treatment at the dispensary after the sanatorium residence the "return case" may be prevented. Dispensary treatment is applicable only to ambulatory cases.—*The Dispensary Treatment of Tuberculosis, A. P. Ford, Brit. J. Tuberc., October, 1929, xxiii, 193.*—(*R. M. F.*)

Pulmonary Tuberculosis and Sport.—This article is essentially an answer to the paper by Nervegno in *Klin. Wchnschr., 1929, xii, 602.* It is emphasized that any form of physical exertion, such as sport training, is usually dangerous for a tuberculous patient, even after the disease is arrested. The damage, which may be caused by active sports in a patient with a minimal and arrested tuberculous process, is illustrated by the detailed history of one patient.—*Lungentuberkulose und Sport, W. Markowicz, Klin. Wchnschr., June 25, 1929, xii, 1224.*—(*M. P.*)

Diet in Tuberculosis.—Personal letters were written to more than forty specialists on the subject in order to obtain opinions as to satisfactory dietary methods in tuberculosis. While opinions varied widely in answering certain questions, in general the majority agreed upon the following principles: Lunches between meals are rarely advisable. The average patient enjoys his food more and takes more nourishment when he confines himself to three good meals daily. Eggnogs in any form at any time are strongly advised against as the surest way of upsetting the digestion. Raw eggs, if easily borne and if the patient is underweight, do no harm and may do good, but they are not so digestible as cooked eggs and are rarely indicated. About one quart of milk daily, with meals, is the maximum amount that should be allowed. One glass of milk with each meal is usually sufficient. There are no special foods that need be emphasized. Fruit and green vegetables will help correct constipation; they contain vitamines but little if any nourishment. Potatoes, macaroni and rice contain much food value. The bowels should act once daily at least. A mild laxative once a week is often a valuable help if a diet with plenty of roughage is not enough. Five or six glasses of water daily with and between meals is advisable in every case. A rest before and especially after each meal is essential.—*Diet in Tuberculosis, J. B. Hawes 2nd, J. Am. M. Ass., August 10, 1929, cxiii, 452.*—(*G. L. L.*)

Basic Feeding in Tuberculosis.—Recent studies from Sauerbruch's Clinic in Munich urge the curative value of a base-forming dietary low in sodium chloride, protein and carbohydrate, and rich in fats and vitamines. Clinical observations were made before and after such a basic dietary in 20 cases of far-advanced pulmonary tuberculosis over a period of six months at Saranac Lake. These patients had previously failed to respond for a period of two or three years of routine treatment, and were between the ages of 22 and 33 years. The average dietary consisted of 3,500 calories. During the six months 8 patients gained substantially in weight, 10 showed marked diminution in the quantity of sputum but without loss of tubercle bacilli, 4 showed a loss of a slight constant fever, while 2 developed fever. Eight patients showed definite clearing in the lungs by physical and roentgen examination; two patients with intestinal tuberculosis lost symptoms; one did not respond. A diminution in fatigue, pains in the chest, and alimentary disturbances were conspicuous. The acid-base equilibrium of the patients studied before

and after the dietary shifted toward the basic side, which result is in accord with similar studies made on rats maintained on acid-forming and base-forming diets, respectively. There were favorable results, therefore, in about one-third of the patients. It is possible, however, that the psychic element, the enforced rest, the wholesome food, its scrupulous preparation and careful cooking, and the individual service are factors that must be considered in a final analysis.—*Basic (Vitamin) Feeding in Tuberculosis: Preliminary Report, E. Mayer and I. N. Kugelmass, J. Am. M. Ass., December 14, 1929, xciii, 1856.*—(*G. L. L.*)

Salt-Free Diet in Pulmonary Tuberculosis.—This report is published because recent newspaper publicity has created the impression that pulmonary tuberculosis may be successfully treated and even cured by mere dietary methods. Twenty patients have been treated in 1928, strictly according to the dietary regimen of the Sauerbruch clinic. Although a great deal of care was used in the preparation of the food, the majority of patients developed, sooner or later, a definite dislike for the diet. In five of the 20 patients, the phosphorus-codliver oil was omitted. The clinical histories of the 20 patients are briefly reported. The conclusions of this work are as follows: The pulmonary lesions were not influenced beneficially by the diet. In no case could a significant improvement be noted clinically or roentgenologically. In no case was a so called detoxication observed. The gain in weight did not exceed the one usually observed in sanatorium treatment; the codliver oil played, probably, a more important rôle in this regard than the rest of the diet.—*Erfahrungen mit der Gerson-Diät bei Lungentuberkulösen, E. Schwalm, Klin. Wchnschr., October 15, 1929, viii, 1941.*—(*M. P.*)

Treatment of Tuberculosis by Limitation of Fluids.—Limitation of fluids in the treatment of tuberculosis is logical, especially when one considers the natural and artificial elimination in night-sweats and the sun-cure. One should support the patient in all ways possible. Irritation is brought about by alternating dehydration and hydrotherapy. Periodic administration of dry foods, and intermittent repeated lowering of the intake of salt and fluids, along with the accepted measures employed in general treatment, have produced gratifying results in patients with orthopaedic tuberculosis. The progress in these cases was controlled by keeping weight curves and observing the sedimentation rate of the red blood cells. Because of the necessity of intermittent treatment, dry climates are not suitable. Favorable results follow two to four periods of "dry" cures. No injurious results were observed.—*Ueber die intermittierende Flüssigkeitsbeschränkung (Trockenkostbehandlung) bei der Knochen und Gelenktuberkulose, G. Karfiol, Deutsche med. Wchnschr., May 3, 1929, lv, 739.*—(*H. S. W.*)

Treatment of Pulmonary Tuberculosis by Dust Inhalation.—In view of the fact that lime or sulphur or their compounds in industry are associated with a rarity of tuberculosis among the workers, an inhalation therapy is suggested in which is used a powder prepared from calcium sulphate and calcium oxide in particles of 1–15 micra. The inhalations are administered daily 4 to 6 times for 2-minute periods and increasing to 6 to 8 times for 5 to 8 minutes by means of a special apparatus described by the author. This method of treatment was used on 26 cases of pulmonary tuberculosis, mostly in the second and third stages (Turban-Gehrhardt) or the Ranke II and III productive-exudative classification. The treatment was continued for 4 months and the cases have been observed for a year and a quarter. Silicosis was not observed in these cases roentgenologically. Improvement was noted in the roentgen findings, the haemogram, sedimentation reaction, the sputum, the temperature and the weight curve.—*Zur Frage der Bekämpfung der Lungentuberkulose durch Staubinhalation, H. Hennes, Beitr. z. Klin. d. Tuberk., 1928, lxxi, 46.*—(*H. J. C.*)

Action of Salt-Water Baths.—Light baths and salt-water baths possess a certain parallelism in action in that there is a liberation of calcium from the skin into the blood and this diminution of the calcium at the periphery diminishes the sympathetic-nerve action. Warm salt-water baths have a vagatonic and sympathetic hypotonic effect. Salt-water baths stimulate the skin and the action of the basal cells, especially in their immunizing power. The skin and internal organs influence each other in opposite ways, and thus is explained the stimulating effect of the skin upon the diseased organ.—*Wie wirken die Solbäder, A. Bretschneider, Zeitschr. f. Tuberk., 1929, lii, 512.*—(*H. J. C.*)

After-Care of Tuberculosis Patients.—The spontaneous decline in the mortality from tuberculosis of the last two decades has been striking. Its causes are involved. It has been attributed by various writers to

(1) better living conditions, (2) tuberculization of the civilized races, (3) organization and activity of the campaign against the disease and (4) weakening of virulence of the tubercle bacillus. Despite the gratifying decline, the battle against the disease must be unremitting. The death-rate may be reduced to an even greater extent by detection and treatment of early cases, rigid isolation of the very ill, prophylactic vaccination with *BCG* (possibly), removal of healthy infants from their environment, better following up of sanatorium patients after they return home, etc. The last proposition is of the greatest importance. It should consist in giving the sanatorium graduate occupation suitable in amount of effort and skill required, suitable as to hours of employment and to the capacity of the patient to work. The scheme of employment-settlements or colonies such as the Papworth colony approach the ideal in after care and, in large numbers of instances, must lead from temporary to permanent cures. Such schemes do much to counteract the effect of the dismissed patients' two worst enemies, namely; public opinion and economic necessity, for ordinarily the patient is expected to return to work (usually overwork for him) or lose the means of livelihood.—*Wege der Lungentuberkulosebekäupfung, mit besonderer Berücksichtigung der Nachfürsorge, Margarete Levy, Deutsche med. Wchnschr., June 21, 1929, lv, 1097.*—(*H. S. W.*)

Artificial Pneumothorax.—The greatest hazard of pneumothorax treatment, gas emboli into the pulmonary vein, can be practically prevented if the needle is inserted only into the regions where healthy lung tissue is to be found as determined by exact clinical and roentgenological examinations. The main essentials in pneumothorax therapy are unobstructed manometer oscillations and roentgen control before refilling. Not a compression but rather a collapse treatment should be aimed at. A perfectly working and properly dosed pneumothorax should leave no subjective symptoms. The exudates occurring in about one-third of the patients are mostly harmless, although the danger of rupture should be watched for. The presence of cavities does not necessarily indicate pneumothorax treatment as long as these show retrogression. Unsuited for pneumothorax treatment are all forms of severe intestinal and laryngeal tuberculosis, cardiac failure, severe diabetes, and serious kidney disturbances with the exception of renal tuberculosis.—*Was leistet der künstliche Pneumothorax in der Behandlung der Lungentuberkulose, unter besonderer Berücksichtigung der neueren Ergebnisse der Phthiseogenese, G. Baer, Zeitschr. f. Tuberk., 1928, li, 12.*—(*H. J. C.*)

Key to Abstractors

A. P.: Andrew Peters, Pittsfield, Mass.
B. T. McM.: B. T. McMahon, Loomis, New York.
E. H. K.: E. H. Kerper, Loomis, New York.
G. L. L.: George L. Leslie, Detroit, Mich.
H. J. C.: H. J. Corper, Denver, Col.
H. McL. R.: H. McL. Riggins, Loomis, New York.
H. S. W.: H. S. Willis, Baltimore, Md.
J. G.: Jacob Goldberg, Loomis, New York.
J. S. W.: J. Stanley Woolley, Loomis, New York.
M. P.: Max Pinner, Northville, Mich.
R. M. F.: R. M. Franklin, Loomis, New York.
W. I. W.: Walter I. Werner, Pontiac, Mich.